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PRC

PRELIMINARY ASSESSMENT/ VISUAL SITE INSPECTION

CTS ELECTRONICS CORPORATION, FREQUENCY CONTROL DIVISION SANDWICH, ILLINOIS ILD 005 470 125

FINAL REPORT

Prepared for

U.S. ENVIRONMENTAL PROTECTION AGENCY
Office of Waste Programs Enforcement
Washington, DC 20460

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A - EPA PRELIMINARY ASSESSMENT FORM 2070-12
B - VISUAL SITE INSPECTION SUMMARY AND PHOTOGRAPH LOG
C - VISUAL SITE INSPECTION FIELD NOTES
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EXECUTIVE SUMMARY

Resource Applications, Inc. (RAI) performed a preliminary assessment and visual site inspection (PA/VSI) to identify and assess the existence and likelihood of releases from solid waste management units (SWMUs) and other areas of concern (AOCs) at the CTS Electronics Corporation, Frequency Control Division (CTS) facility in Sandwich, Illinois. This report summarizes the results of the PA/VSI and evaluates the potential for releases of hazardous wastes or hazardous constituents from SWMUs and AOCs identified. In addition, a completed U.S. Environmental Protection Agency (EPA) Preliminary Assessment Form (EPA Form 2070-12) is included in Attachment A to assist in prioritization of RCRA facilities.

CTS is engaged in the manufacture of products for the electronics industry. The facility primarily produces frequency control devices using quartz crystals, but also does contract electronics assembly. The plant occupies two buildings on approximately 13 acres in an industrial park on the east side of town. The original plant was constructed in 1966 and enlarged in 1974. At the present time, the facility is a generator of hazardous waste, primarily solvents, although in the past it operated as a storage facility. The manufacturing process produces petroleum oil (D001) as waste from grinding operations. This waste is collected in pails (SWMU 4) and accumulated in 55-gallon barrels (SWMU 3). Manufacturing processes also produce waste solvents including 1,1,1-trichloroethane (F002) and alcohols (D001), which are also accumulated in 55-gallon barrels (SWMU 2). All hazardous wastes are stored outside (SWMU 1) and removed from the facility in less than 90 days and shipped to a licensed treatment, storage, or disposal (TSD) facility for reclamation or incineration. Manifests indicate that the facility generates a combined total of 25-30 barrels from all waste streams per 90-day interval.

The PA/VSI identified the following 7 SWMUs and 2 AOCs at the facility:

Solid Waste Management Units

1. Outdoor Hazardous Waste Storage Area
2. Indoor Hazardous Waste Satellite Accumulation Area
3. Secondary Waste Accumulation Areas
4. Primary Waste Accumulation Pails
5. Waste Water Pre-Treatment Settling Tanks
6. Waste Water Filter Press
7. Former Outdoor Open Barrel Storage Area

Areas of Concern

1. Former Laboratory Area
2. Soils Adjacent to Outdoor Hazardous Waste Storage Area

There have been no documented releases at this facility and the potential for a significant release to the environment is low. The amount of hazardous constituents used in any particular area of the plant is small and the largest containers used for waste storage are 55-gallon barrels.

The potential for a release to the ground water from this facility is low. The Outdoor Hazardous Waste Storage Area (SWMU 1) is fenced and secure, and has secondary containment features which would control any type of release to the ground. All other locations where hazardous constituents are managed are inside buildings which would minimize the possibility of a release to the environment.

The potential for a release which would affect human receptors is also low. Drinking water in the vicinity of the plant is from municipal water wells located approximately 0.5 miles upgradient of the facility and not private drinking wells. However, spills which escape from the facility would enter a ditch system with no outlet because there is no storm water sewer system in this part of town. According to the facility contingency plan, there is no worst-case scenario which would present an imminent threat or danger to the community (CTS, 1991).

The potential for releases to surface waters is low. There are no surface waters nearby, and the facility does not discharge into surface waters. Secondary containment features of the Outdoor Hazardous Waste Storage Area (SWMU 1) also limit the potential for such a release. The industrial Waste Water Pre-Treatment facility (SWMU 5) is monitored and discharges into the sanitary sewage system of a publicly owned treatment works. These discharges are subject to the pre-treatment requirements of the Clean Water Act (Attachment D).

The potential for releases to air is low. Hazardous constituents are primarily managed indoors in small quantities. The facility maintains three air permits from the State of Illinois for the operation of exhaust blowers and release of boiler gas (Attachment D). The facility is located on the eastern extremity of town minimizing the impact on the community of any release.

No release to soils has been reported. However, during closure activities, organic contamination of soils was identified. Trichlorofluoromethane concentrations were 1 and 1.7 parts per million, but these levels are not in excess of background levels. Subsequent soil testing identified trace amounts (below detection limits) of two chlorofluorocarbons but did not require soil removal or remediation (Attachment E).

This facility presently poses a low threat of release via migration pathways. Secondary containment procedures and adequate waste management practices limit the possibility of future releases.

This PA/VSI recommends that sampling be conducted in three areas of the facility, the Former Outdoor Open Barrel Storage Area (SWMU 7), the Former Laboratory (AOC 1), and the Soils Adjacent to the Outdoor Hazardous Waste Storage Area (AOC 2).

1.0 INTRODUCTION

PRC Environmental Management, Inc. (PRC) received Work Assignment No. C05087 from the U.S. Environmental Protection Agency (EPA) under Contract No. 68-W9-0006 (TES 9) to conduct preliminary assessments (PA) and visual site inspections (VSI) of hazardous waste treatment and storage facilities in Region 5. Resource Applications, Inc. (RAI), TES 9 Team member, provided the necessary assistance to complete the PA/VSI activities for CTS Electronics Corporation.

As part of the EPA Region 5 Environmental Priorities Initiative, the RCRA and CERCLA programs are working together to identify and address RCRA facilities that have a high priority for corrective action using applicable RCRA and CERCLA authorities. The PA/VSI is the first step in the process of prioritizing facilities for corrective action. Through the PA/VSI process, enough information is obtained to characterize a facility's actual or potential releases to the environment from solid waste management units (SWMU) and areas of concern (AOC).

A SWMU is defined as any discernible unit at a RCRA facility in which solid wastes have been placed and from which hazardous constituents might migrate, regardless of whether the unit was intended to manage solid or hazardous waste.

The SWMU definition includes the following:

- RCRA-regulated units, such as container storage areas, tanks, surface impoundments, waste piles, land treatment units, landfills, incinerators, and underground injection wells
- Closed and abandoned units
- Recycling units, wastewater treatment units, and other units that EPA has generally exempted from standards applicable to hazardous waste management units
- Areas contaminated by routine and systematic release of wastes or hazardous constituents. Such areas might include a wood preservative drippage area, a loading-unloading area where solvent used to wash large parts has continually dripped onto soils.

An AOC is defined as any area where a release to the environment of hazardous waste or constituents has occurred or is suspected to have occurred on a nonroutine and nonsystematic basis. This includes any area where such a release in the future is judged to be a strong possibility.

The purpose of the PA is as follows:

- Identify SWMUs and AOCs at the facility.
- Obtain information on the operational history of the facility.
- Obtain information on releases from any units at the facility.
- Identify data gaps and other informational needs to be filled during the VSI.

The PA generally includes review of all relevant documents and files located at state offices and at the EPA Region 5 office in Chicago.

The purpose of the VSI is as follows:

- Identify SWMUs and AOCs not discovered during the PA.
- Identify releases not discovered during the PA.
- Provide a specific description of the environmental setting.
- Provide information on release pathways and the potential for releases to each medium.
- Confirm information obtained during the PA regarding operations, SWMUs, AOCs, and releases.

The VSI includes interviewing appropriate facility staff, inspecting the entire facility to identify all SWMUs and AOCs, photographing all SWMUs, identifying evidence of releases, initially identifying potential sampling locations, and obtaining all information necessary to complete the PA/VSI report.

This report documents the results of a PA/VSI of the CTS Electronics Corporation, Frequency Control Division (CTS) facility in Sandwich, Illinois (ILD 005 470 125).

The PA was completed on April 15, 1991. RAI gathered and reviewed information from Illinois Environmental Protection Agency (IEPA) and from EPA Region 5 RCRA files. Additional information was obtained from the U.S. Department of Agriculture (USDA) Soil Conservation Service and the Illinois State Geologic Survey.

The VSI was conducted on April 16, 1991 by Jeff Indeck and Amy Sapp of RAI. It included interviews with Norm Watkins, facility representative, and a walk-through inspection of the facility. Seven SWMUs and two AOCs were identified at the facility. A completed EPA Preliminary Assessment Form (EPA Form 2070-12) is included in Attachment A. The VSI is summarized and 10 inspection photographs are included in Attachment B. Field notes from the VSI are included in Attachment C. Copies of operating permits are included as Attachment D and analytical data from the closure operations are included as Attachment E.

2.0 FACILITY DESCRIPTION

This section describes the facility's location, past and present operations (including waste management practices), waste generating processes, release history, regulatory history, environmental setting, and receptors.

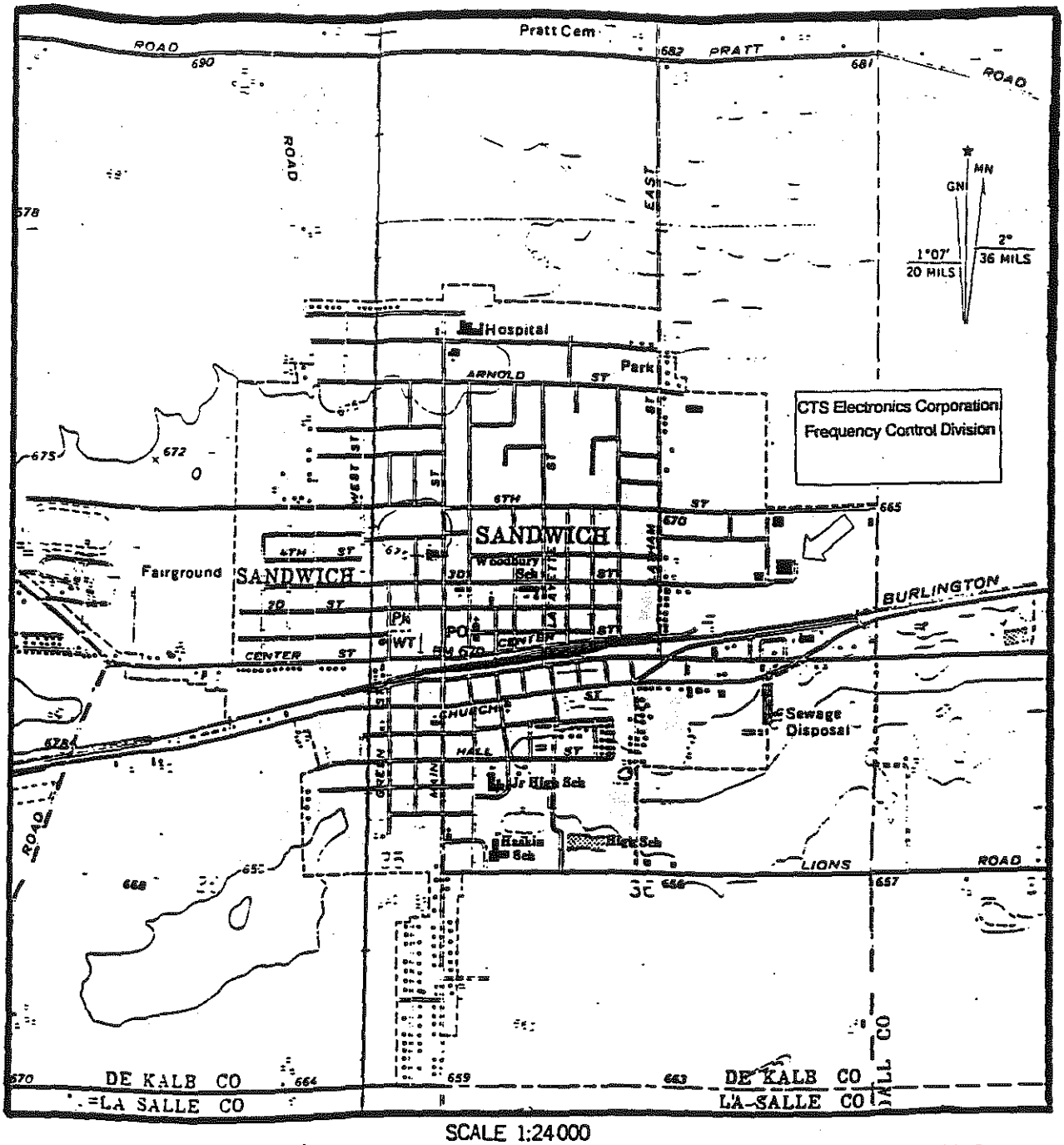
2.1 FACILITY LOCATION

The CTS facility is located at 400 Reimann Avenue on the east edge of the City of Sandwich in De Kalb County in north-central Illinois (41°39'00" latitude, 88°37'00" longitude) (see Figure 1). The plant occupies two buildings on approximately 13 acres in an industrial park at the east end of 3rd Street. The buildings are surrounded by mostly undeveloped land. Agricultural farmlands are located to the east and south, and a large parking area is located to the north. Two companies, one engaged in plastics molding and the other engaged in metal die casting operations, are located farther north and northeast of the facility in the industrial park. Across the street, west of the plant, is the corner of a subdivision which is currently occupied by a single residence and a business that generates carbon brushes. Figure 2 shows the general layout of the plant and Figure 3 shows details of the main production facility. SWMUs and AOCs identified during the PA/VSI are shown on Figures 2 and 3.

2.2 FACILITY OPERATIONS

CTS Corporation was originally Chicago Telephone Supply, a telephone mail-order company started by James Knights. This company was subsequently sold to CTS. The company now manufactures electronic components and has facilities throughout the Midwest, in California, and in Asia. Although this facility does a limited amount of prototype development, most of the manufacturing occurs in Singapore and Hong Kong. Local operations currently employ approximately 500 people in production activities.

The west half of the manufacturing facility was constructed in 1966 and has been occupied continuously by CTS. In 1974, the building was expanded to its current configuration and the six settling tanks for waste water treatment were emplaced outside the northeast corner of the building.



SCALE 1:24000

1 0 1 MILE

1000 0 1000 2000 3000 4000 5000 6000 7000 FEET

1 5 0 1 KILOMETER

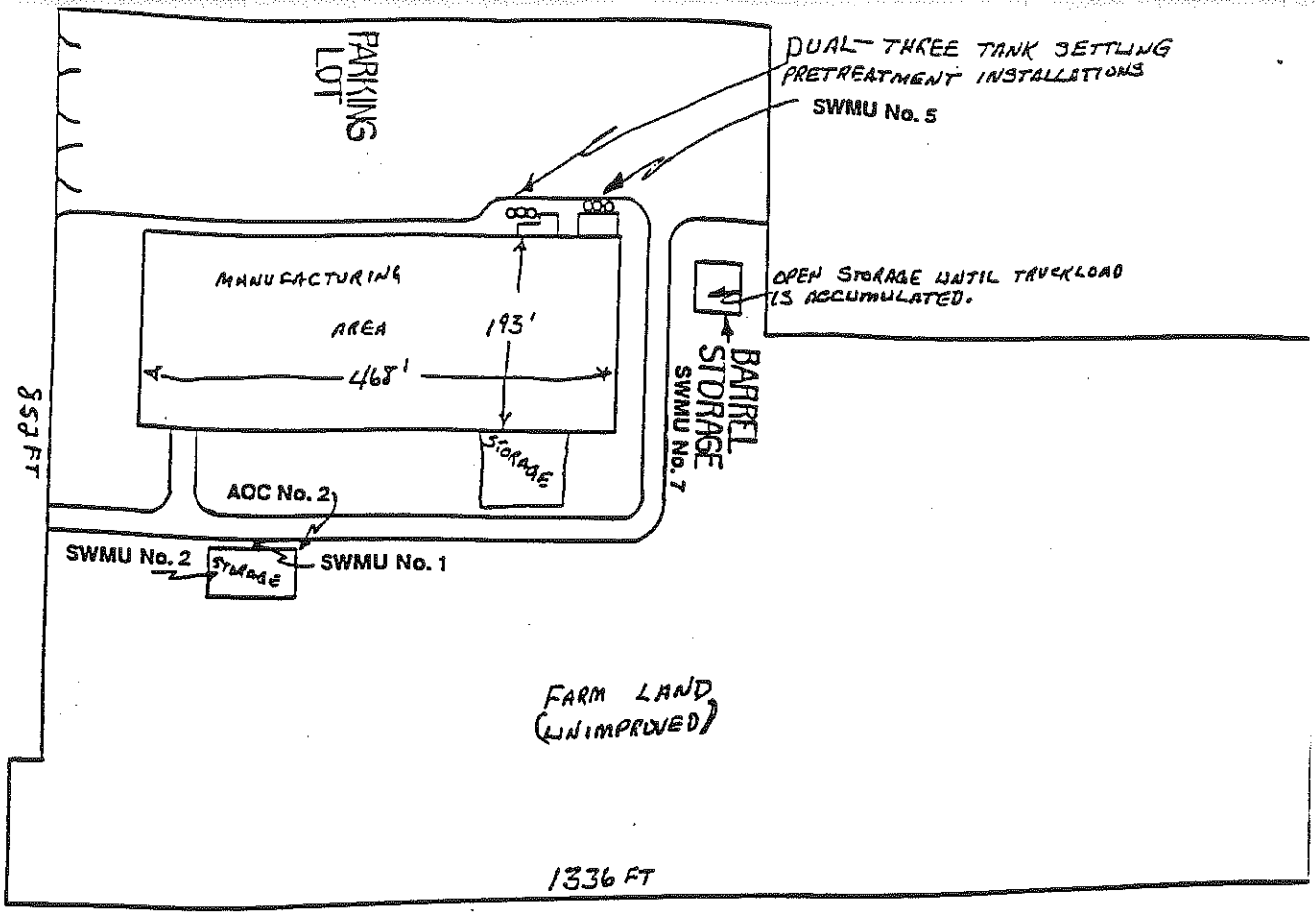
CONTOUR INTERVAL 5 FEET
DATUM IS MEAN SEA LEVEL

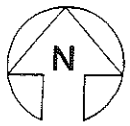
CTS Electronics Corporation
Sandwich, Illinois

Figure 1
Facility Location

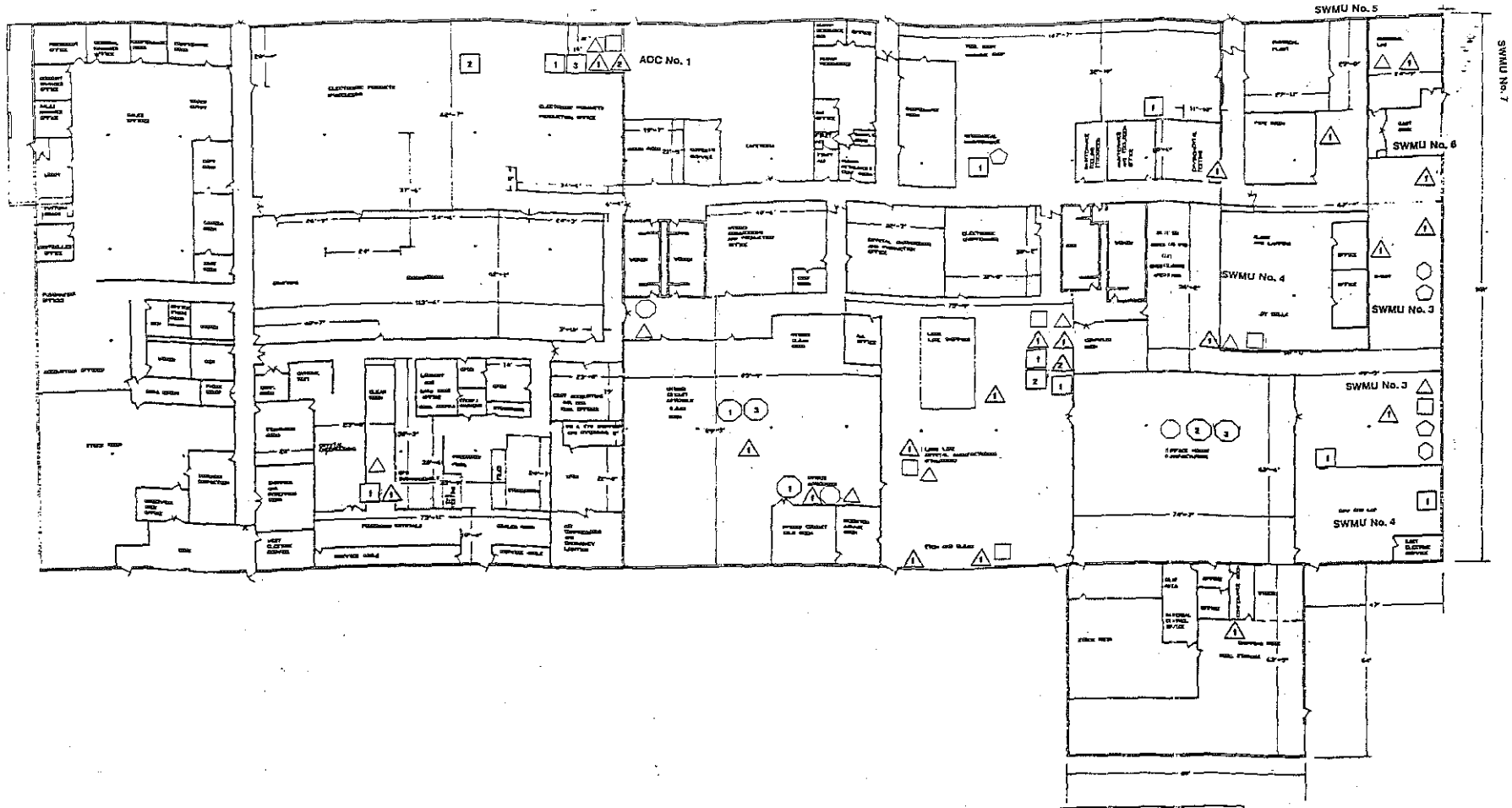
Source: USGS, 1971a, 1971b

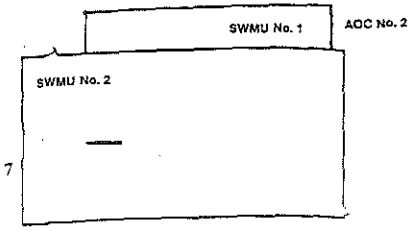
Resource Applications, Inc.

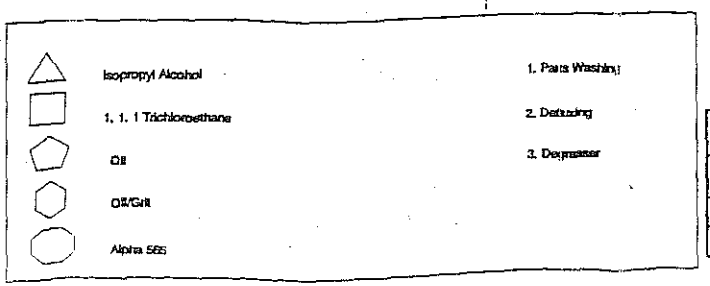




CTS Electronics Corporation Sandwich, Illinois
Figure 2 General Facility Layout
Approximate Scale: 1" = 180' Source: CTS, 1980
Resource Applications, Inc.







CTS Electronics Corporation
Sandwich, Illinois

Figure 3
Detailed Facility Layout

Source: CTS, 1991

Resource Applications, Inc.

This CTS facility manufactures quartz chips which are used as frequency control devices (quartz oscillators or clocks) for the electronics industry. Quartz bars are cut and ground into small, thin wafers approximately 0.25 inches in diameter and 2-3 mils thick. This process generates waste petroleum-based oils and silicon carbide grit. Additional grinding operations generate water and grit which is non-hazardous. The wafers are then prepared and attached to electrodes for incorporation into electronic equipment. This process generates waste solvents and cleaning agents, notably methyl chloroform (1,1,1 trichloroethane) and isopropyl alcohol (IPA).

Production utilizes three primary processes: quartz sawing/grinding/polishing, parts cleaning/washing, and defluxing. These processes principally generate waste oils and solvents.

Five years ago, this facility ceased large-scale electroplating operations. Present plating activities are a minor part of total operations and generate small amounts of metal-based corrosive solutions. Acetone is another hazardous constituent managed on site but it is consumed during process operations and no waste is generated. Additionally, helium, hydrogen, and carbon dioxide gases are used in vacuum production and as temperature control media.

Small amounts of miscellaneous hazardous and non-hazardous wastes are generated by research and development, product testing, out of date materials, and annual housecleaning.

Production at this location began in 1966. It is unknown when hazardous waste storage began, although, according to the facility representative, it was prior to 1981. Hazardous waste storage has always been in 55-gallon drums and the hazardous waste storage area (SWMU 1) was formally closed in 1988. This same area, with modifications, is still used for less-than 90-day storage of hazardous wastes (Table 1).

TABLE 1

SOLID WASTE MANAGEMENT UNITS (SWMU)

SWMU Number	SWMU Name	RCRA Hazardous Waste Management Unit*	Status
1	Outdoor Hazardous Waste Storage Area	Yes	Active, less than 90-day storage of hazardous waste
2	Indoor Hazardous Waste Satellite Accumulation Area	No	Active
3	Secondary Waste Accumulation Areas	No	Active
4	Primary Waste Accumulation Pails	No	Active
5	Waste Water Pre-Treatment Settling Tanks	No	Active
6	Waste Water Filter Press	No	Active
7	Former Outdoor Open Barrel Storage Area	No	Inactive

* A RCRA hazardous waste management unit is one that currently requires or formerly required a RCRA Part A or Part B Permit.

2.3 WASTE GENERATING PROCESSES

The primary waste streams at the CTS facility are waste oils and spent solvents generated by three primary processes: quartz sawing/grinding/polishing, parts washing/cleaning, and defluxing (Figure 4 and Table 2). Treatment and disposal methods for primary waste streams are presented in Figure 5, and Figures 6, 7, and 8 present process flow charts for hazardous constituents. Wastes are also generated from plating operations and facility clean up.

Hazardous waste oils are currently generated in the sawing, grinding, and lapping areas within the facility. Lapping machines are devices which use silica carbide grit to polish product surfaces. Oils are used as a lubricant when the quartz bars (crystals) are cut and ground. Coarse solids are spun off in a centrifuge and the hazardous constituents recycled or transferred to the Indoor Hazardous Waste Satellite Accumulation Area (SWMU 2). Small, open-top pails are used beneath each machine as primary collection vessels for waste oils and grit (SWMU 4). This waste liquid is transferred to closed-top barrels which are used as temporary storage. The closed containers are kept in Secondary Waste Accumulation Areas within the production area (SWMU 3). As they are filled, these storage barrels are transferred to the Indoor Hazardous Waste Satellite Accumulation Area (SWMU 2) or the Outdoor Hazardous Waste Storage Area (SWMU 1). The oil and grit mixture is sent to a licensed TSD for incineration.

Non-hazardous water and grit are also generated by grinding and polishing operations. The wafers are fine-tuned by hand or on a lapping machine. This waste material is accumulated in buckets or troughs, and either 1: discharged by trough into the Waste Water Pre-Treatment Settling Tanks (SWMU 5) or, 2: put through a filter press (SWMU 6). Approximately 90 percent of this waste is put through the press to minimize the load of solids to the tanks. The remaining 10 percent is processed directly to the tanks. The filter cake is then sent to a landfill as non-hazardous waste and the water is sewered for municipal treatment.

Waste 1,1,1 Trichloroethane (TCA) is generated from the cleaning of cutting and grinding equipment. This waste is a mixture of solvent, oil, and grit and is sent to a TSD facility for incineration.

PRIMARY PROCESSES

1. Quartz Sawing/Grinding/Polishing

   PROCESS: generate quartz wafers from bar stock by sawing, grinding, and polishing with various abrasive and water/oil combinations.

   WASTES:
   1. 1,1,1 Trichloroethane
   2. Oil/Abrasive Mixtures
   3. Water/Abrasive Mixtures

2. Parts Cleaning/Washing

   PROCESS: vapor degreasing or cold cleaning to remove moisture, particulate matter, light oils, and handling contamination.

   WASTES:
   1. 1,1,1 Trichloroethane
   2. Alpha 565 (1,1,1 trichloroethane & alcohol)
   3. Isopropyl Alcohol

3. Defluxing

   PROCESS: remove rosin flux residues from parts after soldering operations.

   WASTES:
   1. 1,1,1 Trichloroethane
   2. Alpha 565
   3. Isopropyl Alcohol

CTS Electronics Corporation Sandwich, Illinois
Figure 4 Primary Processes
Source: CTS, 1991
Resource Applications, Inc.

CTS CORPORATION, KNIGHTS DIVISION ELECTRONIC PRODUCTS GROUP (* IN ILLINOIS dba CTS ELECTRONICS CORPORATION)	SIZE A	FSCM 75378	DWG. NO.
	REV.	AUTH.	SHEET

TABLE 2

SOLID WASTES

Waste/EPA Waste Code	Source	Primary Management Unit
1,1,1 Trichloroethane/F002	Quartz Grinding Parts Cleaning Defluxing	1, 2, and 3
Alpha 565/F002	Parts Cleaning Defluxing	1, 2, and 3
Alcohols/D001	Parts Cleaning Defluxing	1, 2, and 3
Oil/Abrasive Mixtures/D001	Quartz Grinding	1, 2, 3, and 4
Corrosives	Electroplating	5
Water/Abrasive Mixtures (Non-Hazardous)	Quartz Grinding	4, 5, and 6

TREATMENT/DISPOSAL METHODS

WASTE STREAM	DISPOSAL METHOD
1,1,1 Trichloroethane	Shipped to Licensed TSD for reclamation.
Alpha 565	Shipped to Licensed TSD for reclamation or incineration, depending on alcohol content.
Isopropyl Alcohol	Shipped to TSD for incineration.
Oil/Grit	Shipped to TSD for incineration.
Water/Grit	Dewatered with filter press. Solid (non-hazardous) is landfilled.

CTS Electronics Corporation
Sandwich, Illinois

Figure 5
Treatment and Disposal Methods

Source: CTS, 1991

Resource Applications, Inc.

CTS CORPORATION, KNIGHTS DIVISION ELECTRONIC PRODUCTS GROUP (* IN ILLINOIS dba CTS ELECTRONICS CORPORATION)	SIZE A	FSCM 75378	DWG. NO.
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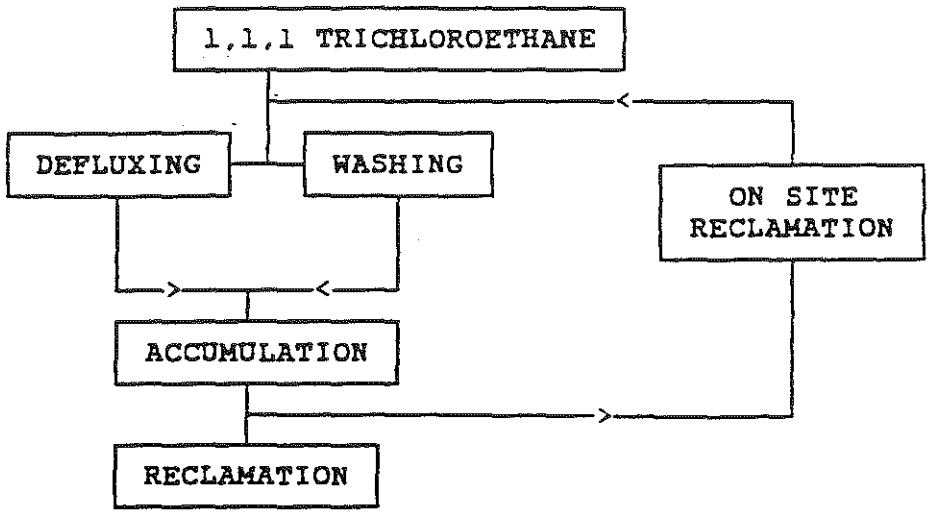


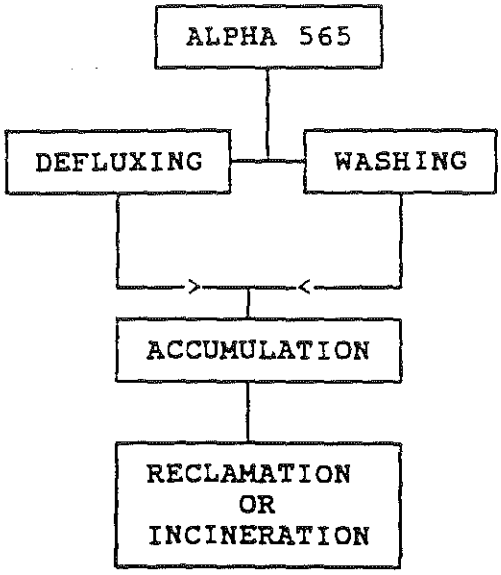
CTS Electronics Corporation
Sandwich, Illinois

Figure 6
Process Flow Chart
1, 1, 1 Trichloroethane

Source: CTS, 1991

Resource Applications, Inc.

CTS CORPORATION, KNIGHTS DIVISION ELECTRONIC PRODUCTS GROUP (* IN ILLINOIS dba CTS ELECTRONICS CORPORATION)	SIZE A	FSCM 75378	DWG. NO.
	REV.	AUTH.	SHEET



CTS Electronics Corporation
Sandwich, Illinois

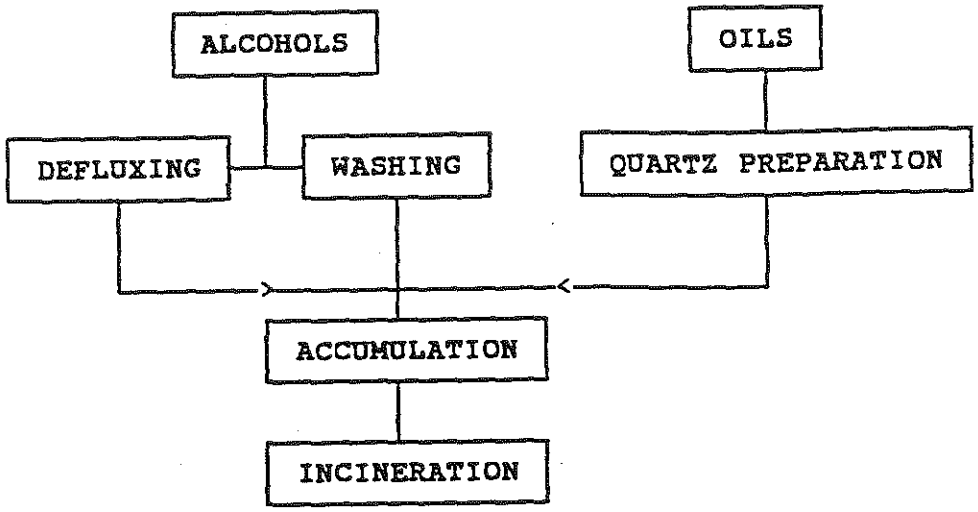
Figure 7
Process Flow Chart
Alpha 565

Source: CTS, 1991

Resource Applications, Inc.

CTS CORPORATION, KNIGHTS DIVISION ELECTRONIC PRODUCTS GROUP (* IN ILLINOIS dba CTS ELECTRONICS CORPORATION)	SIZE A	FSCM 75378	DWG. NO.
	REV.	AUTH.	SHEET

FLOW CHARTS



CTS Electronics Corporation
Sandwich, Illinois

Figure 8
Process Flow Charts
Alcohol and Oils

Source: CTS, 1991

Resource Applications, Inc.

CTS CORPORATION, KNIGHTS DIVISION ELECTRONIC PRODUCTS GROUP (* IN ILLINOIS dba CTS ELECTRONICS CORPORATION)	SIZE A	FSCM 75378	DWG. NO.
	REV.	AUTH.	SHEET

Waste solvents are generated by three processes within the facility: parts washing, defluxing, and degreasing. Waste solvents are accumulated in closed-top containers which are stored in Secondary Waste Accumulation Areas (SWMU 3) within production rooms. The wastes are then transferred to 55-gallon barrels in the Indoor Hazardous Waste Satellite Accumulation Area (SWMU 2). When the barrels are full, they are moved to the Outdoor Hazardous Waste Storage Area (SWMU 1) and shipped off site.

Parts washing is a precision cleaning process and involves the removal of moisture and contaminants which can alter the frequency and characteristics of the quartz crystals. Chemicals used in this process include TCA, isopropyl alcohol (IPA), and Alpha 565, a commercial cleaner containing TCA and alcohol (Attachment E). The plant has two vapor degreasers, one of which has an attached, closed-system recycling still for TCA reclamation. Other solvent wastes are accumulated as described above. Waste TCA, including Alpha 565, is shipped off site for reclamation or, if too diluted with alcohol, incineration. In addition, some of the TCA is recycled by the facility and used for the equipment cleaning previously discussed. Waste IPA is shipped to a TSD for incineration.

Defluxing involves the removal of flux resin residues from parts after soldering operations. Chemicals involved in this process are TCA, Alpha 565, and IPA. Waste solvents are managed as described above. In the past, Freon 113 (1,1,2-trichloro- 1,2,2-trifluoroethane) was also used in this process; however, the facility eliminated its use in 1989 (CTS, 1991).

Acetone is used at the facility to apply a powder coating to parts. The solvent is baked off as part of the process and no waste is generated. Solvents are also used in permanency tests. The volumes used in these processes are less than five gallons per year, and much is lost to volatilization. Any waste solvent is disposed of as a flammable waste.

All hazardous material is shipped off site to Avganic Industries, Inc. (Avganics), of Cottage Grove, WI. This TSD facility tests each shipment and makes the determination to recycle or incinerate the waste (Attachment E).

Minor plating operations at the facility generate small amounts (less than 100 ml) of acidic or basic solutions containing very small amounts of tin or gold. These solutions are pH adjusted at the work station and discharged into the Waste Water Pre-Treatment Settling Tanks (SWMU 5) and the sewer. Therefore, no sludges are produced. The limited volume of these aliquots is diluted enough by the total waste water effluent that the discharge is within levels acceptable to the sanitary district.

Annual or biannual cleanup at the facility results in the generation of off-spec and out of date production materials (mostly resins and epoxys), inks, and other constituents which are associated with prototype production and development. This material is placed in lab packs, tested, and disposed of accordingly, by Avganics. These wastes are stored for less than 90 days in the Outdoor Hazardous Waste Storage Area (SWMU 1).

2.4 RELEASE HISTORY

There have been no documented or reported releases or spills from this facility or any of its SWMUs. Also, there have been no complaints filed by residents. However, during formal closure activities, organic contamination in the soils around the Outdoor Hazardous Waste Storage Area (SWMU 1) was identified. These soils contained detectable levels of trichlorofluoromethane (Freon 11), but concentrations were not in excess of background levels. Two soil samples contained 1.0 and 1.7 mg/kg respectively (background soil sample was 1.9 mg/kg), and did not require soil removal. According to the IEPA Inspection Report dated February 20, 1986, the samples collected at the background locations provide little evidence of significant, if any, contamination of site soils from activities attributable to the Knights Division. This is because the solvent identified, Freon 11, was not the Freon 113 used by the facility (CTS, 1987). However, according to documents reviewed by RAI, both solvents were in use at the facility (Attachment E).

2.5 REGULATORY HISTORY

CTS Knights Division filed a RCRA Part A application with U.S. EPA in 1980 to allow for container storage of generated waste materials primarily due to the uncertainty of finding a consistent source for reclamation and disposal of its waste (CTS, 1980). A variety of F-, P-, and U-code wastes and the Waste Water Pre-Treatment Settling Tanks (SWMU 5) were also listed on the 1980 Permit Application. In 1983, CTS began following generator regulations by shipping all wastes off-site within the 90-day accumulation rule, and initiated proceedings toward closure with development of a formal

Closure Plan (CTS, 1984). The Outdoor Hazardous Waste Storage Area (SWMU 1) was certified closed on March 25, 1988 (CTS, 1988) and completed with a site inspection by IEPA on May 10, 1988 (IEPA, 1988). At that time, the facility's Part A application was withdrawn by IEPA and the facility began being regulated as a generator. RAI found no information indicating whether this was done at the request of the facility.

The facility is currently regulated as a generator only, with storage of hazardous wastes for less than 90 days. Consequently, there are no regulated units. The Waste Water Pre-Treatment facility (SWMU 5) discharges into a publicly-owned treatment works (POTW) and is subject to the pre-treatment requirements of the Clean Water Act (CWA) and the local sanitation district. Therefore, this system is exempt from RCRA and was removed from a subsequent RCRA Part A application (CTS, 1985). RAI was unable to determine whether this subsequent Part A application was the same as, or in addition to, the 1980 application.

The facility has been inspected 5 times by IEPA. Beginning in 1983, these inspections have identified minor compliance violations, mostly associated with paperwork and operating documentation (IEPA, 1983; 1985; 1986; 1987; 1988).

CERCLA

There have been no Superfund actions or activities at this site.

NPDES

CTS does not have an NPDES permit. All wastewater is disposed of to the sanitary sewer. The facility maintains a Water Pollution Control Permit to operate two groups of three 1,500-gallon concrete septic tanks, operated in series, designed to settle grit particles at a maximum flow rate of 1,200 gallons per day (gpd) prior to discharge to the Sandwich Sewage Treatment Plant (IEPA, 1990; Attachment D). There is no storm sewer system in the vicinity of the plant and surface runoff enters a ditch system with no outlet.

AIR

The CTS facility has three air permits: two for the operation of the exhaust blowers and one for the venting of boiler gas (IEPA, 1989). One exhaust blower vents a production room and the second

blower vents the hand soldering area. There is no monitoring associated with or required by these permits (Attachment D).

2.6 ENVIRONMENTAL SETTING

This section describes the climate, flood plain and surface water, geology and soils, and ground water in the vicinity of the CTS facility in Sandwich, Illinois.

2.6.1 Climate

Sandwich, Illinois is in De Kalb County in the northeast portion of the state. The site is about 20 miles south of De Kalb which has the closest National Weather Service office. The average daily temperature is 59.0° F. The lowest average daily minimum temperature is 10.6° F in January and the highest average daily maximum is 84.9° F in July. Total annual precipitation, as a water equivalent, is 36.29 inches. The annual net precipitation is 3.29 inches. The 24-hour maximum rainfall for the area is 4.85 inches (Ruffner and Bair, 1985). The prevailing wind direction is from the west-southwest and the average wind speed is 10.3 miles per hour (mph).

2.6.2 Flood Plain and Surface Water

The facility is on a local topographic high. Toward the east, the ground level falls by about 30 feet over a distance of one mile to Little Rock Creek, a tributary of the Fox River. To the southwest, the level falls 20 feet over one mile. Primary drainage is toward the south in the direction of the Fox River. The steep slope provides efficient drainage and relief to the surface flow. The main drainage carrier is the Fox River and its tributaries flowing south into the Illinois River. The site is located approximately 3 miles north of the Fox River which is used extensively for recreation. The site location is classified as a Zone C floodplain, that is, an area of minimal flooding outside the 500-year flood limit.

2.6.3 Geology and Soils

Surface features in the site vicinity are largely the result of glaciation. Glacial deposits almost completely cover the land with unconsolidated formations of glacial drift underlain by bedrock which includes dolomite, limestone, shale and sandstone (Willman, 1971). Most soils in the area are on uplands which consist mainly of glacial till plain covered by loess. De Kalb County has relatively low

relief (USDA, 1978). Due to substantial coverage by buildings and pavement, identification of soil features is difficult.

Throughout De Kalb County, soil parent materials consist of glacial till, glacial outwash, loess and alluvium (USDA, 1978). The layered bedrock lies below the unconsolidated surficial deposits at depths ranging from 100 to 300 feet. Major topographic features were formed by the glaciers that once covered De Kalb County. These features include two broad, arcuate, hilly ridges of sand and gravel that cross the county from east to southwest (Gross, 1970). Thick glacial deposits, exceeding 100 feet at most places, mantle the bedrock surface in De Kalb County in the site vicinity (Hackett and Bergstrom, 1956).

Bedrock formations lie directly below the glacial deposits which range in thickness from a few feet to as much as 600 feet (Gross, 1970). The bedrock consists of layers of limestone, dolomite, shale and sandstone. Near the facility older rocks, mainly dolomite with some sandstone, are in contact with the Galena-Platteville dolomite. The Galesville sandstone is at least 400 feet shallower and constitutes the upper aquifer. Beneath these formations is layered rock ranging in depth from 2,650 to 3,845 feet in De Kalb County (Hackett and Bergstrom, 1956).

2.6.4 Ground Water

Ground water in the area of De Kalb County near the site is available for most purposes including municipal, industrial and domestic uses. Principal aquifers are sand and gravel in the unconsolidated deposits and fractured limestone or dolomite and permeable sandstone in the bedrock (Gross, 1970). There are four principal aquifers: (1) sand and gravel beds of glacial drift; (2) the shallow dolomite aquifer, mainly the Silurian dolomite; (3) the Cambrian-Ordovician aquifer in which the Ironton-Galesville and Glenwood-St. Peter sandstones are the most productive units; and, (4) the Mt. Simon aquifer, which consists of the Mt. Simon sandstone and the basal sandstone of the Eau Claire Formation. The Cambrian-Ordovician aquifer is the most highly developed bedrock in the area (Willman, 1971). The general direction of ground water flow is to the east.

Sand and gravel glacial deposits suitable for water wells are widespread in De Kalb county (Hackett and Bergstrom, 1956). Deeper sand and gravel aquifers occur in older glacial deposits throughout the central part of the county. At the facility location buried sand and gravel are present at thicknesses of more than 15 feet and less than 50 feet at depths between 100 and 300 feet, providing a

dependable aquifer at relatively shallow depths. Many domestic and farm wells obtain water from dolomite in the north, central and southwestern parts of the county where the drift cover is thicker.

Deeper sandstones, which occur at depths ranging from 400 to 600 feet, are the most dependable sources of ground water. These sandstones are found in at least three different levels extending up to depths of 200 feet. The top of the Glenwood-St. Peter sandstone, the uppermost of these sandstones, is between 300 and 400 feet below the surface in the northwestern part of the county. Two sandstones are found below the Glenwood-St. Peter: the Ironton-Galesville sandstone, about 500 feet below the top of the Glenwood-St. Peter, is the most productive of the three. The Mt. Simon sandstone, more than 1,500 feet thick, is about 1,000 feet below the top of the Glenwood-St. Peter. However, below the upper 200 feet of the Mt. Simon, water quality may deteriorate with depth. In the southern third of the county around Sandwich, the Glenwood-St. Peter sandstone is absent and the Ironton-Galesville is the upper sandstone aquifer at depths ranging from 400 to 600 feet (Gross, 1970).

2.7 RECEPTORS

The CTS facility is located in an industrial park in Sandwich, De Kalb County, Illinois. Surface drainage is into Little Rock Creek, a tributary of the Fox River, at a distance of 1.5 miles to the east. A residential area of Sandwich is located close to the west side of the facility. The facility itself is not fenced, but the Outdoor Hazardous Waste Storage Area (SWMU 1) is surrounded by a chain-link fence. Access into the buildings is controlled. In addition, the facility is located in a low traffic area at the edge of town. Therefore, the possibility of public contact with contaminated soils, the primary potential exposure medium, is slight because of limited access to hazardous waste storage areas and the remote location of the site.

The facility is served by Sandwich municipal water supply system and sanitary disposal is through municipal sewers. Ingestion of contaminated drinking water from the site is unlikely; the entire city is on a municipal system and the municipal wells are located downtown, west and upgradient an unknown distance from the facility. The nearest surface water is Little Rock Creek, 1.5 miles downgradient. There are no sensitive environments, wetlands, or endangered species' habitats within two miles of the facility. The population of Sandwich is 3,675.

3.0 SOLID WASTE MANAGEMENT UNITS

This section describes the 7 SWMUs identified during the PA/VSI. The following information is presented for each SWMU: description of the unit, dates of operation, wastes managed, release controls, history of release, and RAI observations.

SWMU 1 **Outdoor Hazardous Waste Storage Area**

Unit Description: The storage area for containerized hazardous waste (Photos 1 & 2) is 15' x 30' and located along the outside north wall of the warehouse building (Figure 3). This storage area is outdoors and located on a soundly constructed cement pad. The area is designated by signs on the wall of the building and a taped demarcation on the wall and pad. Waste containers are stored within this marked area to separate them from product containers also stored on the pad.

This area is used to store all drummed waste. The unit has the capacity for 30 barrels. Wastes are removed for off-site disposal at least every 90 days, and more frequently if needed.

Date of Start Up: Unknown. According to the facility representative, the area has been in use since prior to 1981.

Date of Closure: 1988. The area is still used for less than 90-day barrel storage.

Wastes Managed: This unit managed TCA/Alpha 565 (F002), alcohol (D001), and oil (D001). Freon may also have been stored here at one time.

Release Controls: The storage area is secured by a locking chain-link fence. In addition, the cement pad slopes down toward the back and is bermed on 3 sides. The cement pad drains to a sump with a pump. The pump discharges to the ground on an open area east of the concrete pad. Current practice calls for inspecting the pad and sump prior to pumping out rainwater.

History of Release: There have been no documented releases from this management unit. However, closure activities discovered organic contaminants in the soil, but contamination levels did not necessitate remediation.

Observations: At the time of the VSI, there was only one barrel in this management unit. The barrel was labelled as D001 isopropyl alcohol and dated 4/15/91. The condition of the pad is good, and there is no evidence of cracks or breaches. Also, the cement appears clean with no evidence of significant releases or spills. During the VSI it was observed that the containment area drains to a sump with a pump and hose. If there is a spill, the sump would contain it.

SWMU 2 **Indoor Hazardous Waste Satellite Accumulation Area**

Unit Description: The satellite accumulation area for hazardous waste is located in a warehouse building, separate from the main production facility (Figure 3). All wastes are stored in the northwest corner of this building.

This storage area is indoors and located on a soundly constructed cement floor (Photos 3 & 4). Small quantities of wastes are brought into this area and combined with similar waste, which is stored in larger, 55-gallon containers. Transfer of waste materials is accomplished by use of a funnel. Full drums are moved to the Outdoor Hazardous Waste Storage Area (SWMU 1) which is adjacent to the outside north wall of this building. Production materials containing hazardous constituents are also managed in this area.

Date of Start up: Unknown, probably before 1983.

Date of Closure: The unit is currently operational.

Waste Managed: The unit handles the following wastes: Spent solvents, cleaners, and oils [TCA (F002), Alpha 565 (F002), IPA (D001), oils (D001)]. The unit is designed to accommodate one barrel for each waste stream.

Release Controls:	The floor of the building is cement. Spilled waste and product collect on the floor and are managed with absorbent materials and pillows. There are no floor drains or secondary containment systems.
History of Release:	There are no known releases.
Observations:	At the time of the VSI, there were 6 containers in use storing waste. The dates on the labels all indicated accumulation times of less than 90 days. The floor in this area was clean and there was no indication of spills or leaks. There are no restraints to access to the containerized wastes. Spill clean-up materials are located near the unit.
SWMU 3	**Secondary Waste Accumulation Areas**
Unit Description:	The Secondary Waste Accumulation Areas occur in several locations within the Main Production Facility (Figure 3). Waste oils are stored in drums and waste solvents in red closed-top containers (Photos 5 & 6). Raw production materials are also stored in these areas. Transfer is assisted with funnels.
Date of Start Up:	Unknown.
Date of Closure:	These units are currently operational.
Wastes Managed:	These units manage solvent (F002), alcohol (D001), and oil (D001) wastes.
Release Controls:	There are no permanent containment systems. The floors are cement or tiled. Some of the containers have been placed on rubber mats. Sorbent material (oil dry) is kept in two areas along the east end of the facility. Drains in the building have been plugged to prevent releases from the facility.
History of Release:	There are no known releases.

Observations:	These areas are generally clean and well maintained. There are no restraints to access to the containerized wastes. During the VSI, one of the solvent containers was open, but the top was then closed by the facility representative.
SWMU 4	**Primary Waste Accumulation Pails**
Unit Description:	These management units occur throughout the main production facility (Figure 3). They are primarily small, plastic open-top buckets and pails. These containers are placed either adjacent to machines to collect waste oil or adjacent to work stations to collect waste water (Photo 7).
Date of Start Up:	Unknown.
Date of Closure:	These units are currently operational.
Wastes Managed:	Two wastes are managed in this unit. One, a water/grit mixture, is non-hazardous. The second, an oil/grit mixture, has EPA waste code D001.
Release Control:	There is a trench system in the floor of the Blank and Lapping Room, in the northeast corner of the main production facility, which is connected to the Waste Water Pre-Treatment Settling Tanks (SWMU 5) and the sanitary sewer system. There is no secondary containment in other areas but sorbent material to control spills is located along the east wall of the production area.
History of Release:	There are no known releases
Observations:	These containers are open-topped and there are no restraints to access to the containerized wastes.

SWMU 5	**Waste Water Pre-Treatment Settling Tanks**
Unit Description:	This management unit consists of 6 underground tanks used to remove particulates from waste water prior to discharge to the municipal treatment plant (Figure 2). These tanks occur as two groups of three 1,500-gallon concrete septic tanks operated in series (Photo 8). They are designed to settle grit particles at a maximum rate of 1,200 gallons per day. The tanks are fed by a trench system in the floor of the Blank and Lapping Room (Figure 3). There are additional above-grade troughs to service individual work stations.
Date of Start Up:	The tanks and trench system were constructed in 1974.
Date of Closure:	The tanks are currently operational.
Wastes Managed:	Non-hazardous water and silica grit mixture.
Release Control:	This unit treats waste before it is discharged to the sewer system and is monitored in accordance with a facility water pollution control permit.
History of Release:	No releases from this SWMU have been documented.
Observations:	This unit was operational during the VSI, but the tanks are underground and not directly observed. Hazardous constituents are not part of this management unit.

SWMU 6	**Waste Water Filter Press**
Unit Description:	This commercial filter press, with a capacity of approximately 100 gallons or 15 cubic feet, is used to treat wastewater from polishing operations by removal of the grit and particles. This is done to minimize the volume of sediment flowing to the main settling tanks. The unit is "off line" from the floor trenches but may be connected with PVC plumbing (Figure 3). The material of construction for the Filter Press in unknown. It is used on an "as needed" basis. The sludge is removed from barrels and the liquid is returned to barrels and then disposed of through the Waste Water Pre-Treatment Settling Tanks (SWMU 5). The solids are drummed and disposed of at the municipal community landfill. Liquids are further treated by the settling tanks and disposed of to the sanitary sewer.
Date of Start Up:	1989.
Date of Closure:	This unit is currently operational.
Wastes Managed:	This unit handles non-hazardous waste filter cake composed of quartz and silica grit. The unit processes about 100 gallons, or 15 cubic feet, per month.
Release Control:	There are no containment devices. The unit is portable and was located in the East Dock at the time of the VSI.
History of Release:	There are no known releases.
Observations:	The East Dock area was cluttered with storage miscellany at the time of the VSI (Photo 9).

SWMU 7	**Former Outdoor Open Barrel Storage Area**
Unit Description:	This management unit is known from company records and IEPA inspection reports (CTS, 1980; IEPA, 1983). The unit consisted of unsecured outdoor open barrel storage of unknown size and capacity. The size and capacity of this unit are unknown. In the past, the grit/water mixture was centrifuged and the residue was drummed and stored in this unit.
Date of Start Up:	Unknown
Date of Closure:	The unit ceased being used in 1983 but never went through formal closure.
Wastes Management:	According to the facility representative, wastes managed in this unit included water/silica grit mixture but no hazardous constituents.
Release Control:	None. The drums may have been stored open or covered with a plastic lid to keep out rain water.
History Release:	There are no known releases from this unit.
Observation:	This area is currently occupied by a limestone gravel parking lot used for overflow parking.

4.0 AREAS OF CONCERN

RAI identified 2 AOCs during the PA/VSI. These are discussed below.

AOC 1 **Former Laboratory Area**

This area formerly contained the facility laboratory and currently houses a vapor degreaser and solvents (Photo 10). The floor in this area was observed to have significant stains. This former laboratory is an AOC because it is unclear whether the stains are from solvents or from some other constituent managed in the lab. It is also unclear whether spills which are evidenced by floor stains could have migrated into the sanitary sewer or otherwise have escaped the facility. The potential for a release to environmental media is low because all drains in the facility are now plugged.

AOC 2 **Soils Adjacent to Outdoor Hazardous Waste Storage Area (SWMU 1)**

The area east of the Outdoor Hazardous Waste Storage Area (SWMU 1) is currently used for storage of old 55-gallon product barrels. The barrels are emptied of material and stored on their sides. This area is also the location for the discharge from the sump pump (SWMU 1) onto the ground. This area is an AOC because of the potential for contamination from each of these two sources. Also, the contaminated soil adjacent to the storage area remains an area of concern because the presence of Freon in the soil indicates past releases.

5.0 CONCLUSIONS AND RECOMMENDATIONS

The PA/VSI identified 7 SWMUs and 2 AOCs at the CTS facility. Background information on the facility's location, operations, waste generating processes, release history, regulatory history, environmental setting, and receptors is presented in Section 2.0. SWMU-specific information, such as the unit's description, dates of operation, wastes managed, release controls, release history, and observed condition, is discussed in Section 3.0. AOCs are discussed in Section 4.0. Following are RAI's conclusions and recommendations for each SWMU and AOC. Table 3 identifies the SWMUs and AOCs at the CTS facility and suggested further actions.

SWMU 1 **Outdoor Hazardous Waste Storage Area**

Conclusions: Security and containment for this area appear to be adequate and in good condition. The concrete pad is also in good condition. There is no evidence of release from this unit; however, adjacent soils (AOC 2) indicate levels of Freon contamination. Freon may have been stored here at one time.

CTS currently pumps from a sump located in the storage area. The pump discharges to an open area east of the concrete pad. Waste material from drums or on the pad could get washed into the sump by rainwater and subsequently pumped onto the ground. Current practice calls for inspecting the pad and sump prior to pumping.

The potential for a release to surface water is low because there is no surface water nearby. The potential for a release to air is moderate if the storage drums were to be damaged. No air monitoring program is in place. The potential for a release to soils and ground water is low due to the secondary containment system.

Recommendations: No further actions is recommended for this unit at this time.

TABLE 3

SWMU and AOC SUMMARY

SWMU	Operational Dates	Evidence of Release	Suggested Further Action
1. Outdoor Hazardous Waste Storage Area	Prior to 1981 to present	None	No further action at this time
2. Indoor Hazardous Waste Satellite Accumulation Area	Prior to 1983 to present	None	No further action at this time
3. Secondary Waste Accumulation Areas	Unknown to present	None	No further action at this time
4. Primary Waste Accumulation Pails	Unknown to present	None	Close containers, control access
5. Waste Water Pre-Treatment Settling Tanks	1974 to present	None	No further action at this time
6. Waste Water Filter Press	1989 to present	None	No further action at this time
7. Former Outdoor Open Barrel Storage Area	Unknown to 1983	None	Sample soil for all constituents

AOC	Operational Dates	Evidence of Release	Suggested Further Action
1. Former Laboratory Area	1974 to present	Floor stains	Sample floor stains for solvents
2. Soils Adjacent to Outdoor Hazardous Waste Storage Area	1981 to present	Freon in soil	Sample soil for all constituents in past and present wastes

SWMU 2 **Indoor Hazardous Waste Satellite Accumulation Area**

Conclusions: The concrete pad in this area is clean and in good condition. There is no containment for either product or waste barrels, although there is material to clean up spills. This unit is indoors and as such the potential for a release to on-site soils, ground water and surface water is low. Also, because the wastes are managed in 55-gallon barrels, the likelihood of a release escaping the building is low. The potential for a release to air is moderate if the integrity of a barrel is breached. The wastes include volatile material that dissipates readily on exposure to air.

Recommendations: No further action is recommended for this unit at this time.

SWMU 3 **Secondary Waste Accumulation Areas**

Conclusions: These storage areas are indoors and located on a soundly constructed floor. All floor drains are currently plugged. The probability of a spill is moderate due to unlimited access to the storage containers. Consequently, access to the containers should be controlled or restricted. The probability of a release to environmental media is minimal. The facility has a designated spill procedure to minimize and mitigate spill situations.

The potential for a release to on-site soils, ground water and surface water is low because the unit is indoors. The potential for a release to air is also low because the unit is inside and it is unlikely that an air release would escape from the facility.

Recommendations: No further action is recommended for this unit at this time.

SWMU 4 **Primary Waste Accumulation Pails**

Conclusions: The accumulation pails are open-topped devices resting on the floor adjacent to machinery and work stations. No secondary containment exists for these pails (except for the floor trenches in the Blank and Lapping Room) and access is not controlled. The probability of a spill is moderate but the potential for a release to the environment is low because these units are indoors; a spill would enter the trenches and floor drains have been plugged.

The potential for a release to on-site soils, ground water and surface water is low because the areas are indoors and spills are not likely to escape the facility. Similarly, it is unlikely that a spill would result in an air release beyond the facility boundary.

Recommendations: Present storage devices should be replaced with closed-top containers to minimize spills. No further action is recommended at this time.

SWMU 5 **Waste Water Pre-Treatment Settling Tanks**

Conclusions: No evidence of a release was found. This unit does not treat hazardous constituents. Consequently, this unit presents a low potential for release to on-site soils, ground water, surface water and air. This unit is not regulated under RCRA, but the facility maintains a water pollution control permit for the tanks.

Recommendations: No further action is recommended for this unit at this time.

SWMU 6 **Waste Water Filter Press**

Conclusions: This management unit is housed indoors. Wastes managed in this unit are exclusively non-hazardous solid wastes, therefore the threat of release to ground water, surface water, or soils is low. A release of powdered materials would be contained within the building. Although some liquids are present in wastes awaiting processing, any spills could be easily cleaned up.

Recommendations: No further action is recommended for this SWMU at this time.

SWMU 7 **Former Outdoor Open Barrel Storage Area**

Conclusions: This unit is known only from documents reviewed for the PA. According to facility representatives, only a non-hazardous water silica/grit mixture was managed in this unit. The potential for release to on-site soils, ground water, surface water and air from this unit is low. The potential for a previous release cannot be evaluated due to lack of information.

Recommendations: This unit was listed on the CTS facility's 1980 RCRA permit application and on a 1983 IEPA inspection report. Soil sampling for hazardous constituents in use at the facility at that time should be conducted to determine whether hazardous materials remain and, if so, the unit should be properly closed.

AOC 1 **Former Laboratory Area**

Conclusions: The floor in this area was observed to have significant stains. This former laboratory is an AOC because it is unclear whether the stains are from solvents or from some other constituent managed in the lab.

Recommendations: RAI recommends the floor be sampled to determine the nature and extent of any remaining contamination. Contaminants of concern are solvents used at the facility.

AOC 2 **Soils Adjacent to Outdoor Hazardous Waste Storage Area**

Conclusions: Although the potential for future releases is low, the probability of prior releases is high and RAI recommends soil sampling at this location for all past and present wastes. No evidence of a release was observed, but no source for the contamination has ever been identified.

Recommendations: Without containment, contamination of environmental media is possible. If new contamination is identified, the facility should consider covering the storage area, moving the empty drums onto the storage pad, and/or drumming the sump pump discharge.

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ATTACHMENT A

EPA PRELIMINARY ASSESSMENT FORM 2070-12

EPA

POTENTIAL HAZARDOUS WASTE SITE
PRELIMINARY ASSESSMENT
PART 1 - SITE INFORMATION AND ASSESSMENT

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
IL	ILD 005 470 125

II. SITE NAME AND LOCATION

01 SITE NAME (Legal, common, or descriptive name of site)	02 STREET, ROUTE NO., OR SPECIFIC LOCATION IDENTIFIER				
CTS Electronics Corporation, Frequency Control Division	400 Reimann Avenue				
03 CITY	**04 STATE**	**05 ZIP CODE**	**06 COUNTY**	**07 COUNTY CODE**	**08 CONG DIST**
Sandwich	IL	60548	DeKalb	037	

09 COORDINATES: LATITUDE 41 39 00.0 | LONGITUDE 088 37 00.0

10 DIRECTIONS TO SITE *(Starting from nearest public road)*

The facility is located in an Industrial Park at the East End of 3rd Street

III. RESPONSIBLE PARTIES

01 OWNER *(if known)*	02 STREET *(Business, mailing residential)*		
CTS Corporation	905 North West Boulevard		
03 CITY	**04 STATE**	**05 ZIP CODE**	**06 TELEPHONE NUMBER**
Elkhart	IN	46514	( )
07 OPERATOR *(if known and different from owner)*	**08 STREET *(Business, mailing, residential)***		
CTS Electronics Corporation	400 Reimann		
09 CITY	**10 STATE**	**11 ZIP CODE**	**12 TELEPHONE NUMBER**
Sandwich	IL	60548	(815) 786-8411

13 TYPE OF OWNERSHIP *(Check one)*

☒ A. PRIVATE ☐ B. FEDERAL: _____ *(Agency name)* ☐ C. STATE ☐ D. COUNTY ☐ E. MUNICIPAL

☐ F. OTHER _____ *(Specify)* ☐ G. UNKNOWN

14 OWNER/OPERATOR NOTIFICATION ON FILE *(Check all that apply)*

☒ A. RCRA 3010 DATE RECEIVED: 11 / 10 / 80 (MONTH DAY YEAR) ☐ B. UNCONTROLLED WASTE SITE *(CERCLA 103 c)* DATE RECEIVED: / / (MONTH DAY YEAR) ☐ C. NONE

IV. CHARACTERIZATION OF POTENTIAL HAZARD

01 ON SITE INSPECTION

☒ YES DATE 04 /16 / 91

☐ NO

BY *(Check all that apply)*

☐ A. EPA ☒ B. EPA CONTRACTOR ☐ C. STATE ☐ D. OTHER CONTRACTOR

☐ E. LOCAL HEALTH OFFICIAL ☐ F. OTHER: _____ *(Specify)*

CONTRACTOR NAME(S): Resource Applications, Inc.

02 SITE STATUS *(Check one)*	03 YEARS OF OPERATION	
☒ A. ACTIVE ☐ B. INACTIVE ☐ C. UNKNOWN	1966 (BEGINNING YEAR) | Present (ENDING YEAR)	☐ UNKNOWN

04 DESCRIPTION OF SUBSTANCES POSSIBLY PRESENT, KNOWN, OR ALLEGED

1,1,1 Trichloroethane, Alcohols, Oils, Solvents.

05 DESCRIPTION OF POTENTIAL HAZARD TO ENVIRONMENT AND/OR POPULATION

Site is in an Industrial Area with low potential for soil and ground water contamination. Most hazardous constituents are managed indoors. Potential for impact to human receptors is low.

V. PRIORITY ASSESSMENT

01 PRIORITY FOR INSPECTION *(Check one. If high or medium is checked, complete Part 2 - Waste Information and Part 3 - Description of Hazardous Conditions and Incidents.)*

☐ A. HIGH *(Inspection required promptly)* ☐ B. MEDIUM *(Inspection required)* ☒ C. LOW *(Inspect on time-available basis)* ☐ D. NONE *(No further action needed; complete current disposition form)*

VI. INFORMATION AVAILABLE FROM

01 CONTACT	02 OF *(Agency/Organization)*			03 TELEPHONE NUMBER
Kevin Pierard	U.S. EPA			(312) 886-4448
04 PERSON RESPONSIBLE FOR ASSESSMENT	**05 AGENCY**	**06 ORGANIZATION**	**07 TELEPHONE NUMBER**	**08 DATE**
Jeff Indeck		Resource Applications, Inc.	(312) 332-2230	07 / 12 / 91 (MONTH DAY YEAR)

EPA

POTENTIAL HAZARDOUS WASTE SITE
PRELIMINARY ASSESSMENT
PART 2 - WASTE INFORMATION

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
IL	ILD 005 470 125

II. WASTE STATES, QUANTITIES, AND CHARACTERISTICS

01 PHYSICAL STATES *(Check all that apply)*

- ☐ A. SOLID
- ☐ B. POWDER, FINES
- ☐ C. SLUDGE
- ☐ D. OTHER _____ *(Specify)*
- ☐ E. SLURRY
- ☒ F. LIQUID
- ☐ G. GAS

02 WASTE QUANTITY AT SITE
(Measures of waste quantities must be independent)

TON _____

CUBIC YARDS _____

NO. OF DRUMS 25-30

03 WASTE CHARACTERISTICS *(Check all that apply)*

- ☐ A. TOXIC
- ☐ B. CORROSIVE
- ☐ C. RADIOACTIVE
- ☐ D. PERSISTENT
- ☐ E. SOLUBLE
- ☐ F. INFECTIOUS
- ☒ G. FLAMMABLE
- ☐ H. IGNITABLE
- ☒ I. HIGHLY VOLATILE
- ☐ J. EXPLOSIVE
- ☐ K. REACTIVE
- ☐ L. INCOMPATIBLE
- ☐ M. NOT APPLICABLE

III. WASTE TYPE

CATEGORY	SUBSTANCE NAME	01 GROSS AMOUNT	02 UNIT OF MEASURE	03 COMMENTS
SLU	SLUDGE			
OLW	OILY WASTE	110	gallons	
SOL	SOLVENTS	1500	gallons	shipped off site
PSD	PESTICIDES			
OCC	OTHER ORGANIC CHEMICALS			
IOC	INORGANIC CHEMICALS			
ACD	ACIDS			
BAS	BASES			
MES	HEAVY METALS			

IV. HAZARDOUS SUBSTANCES *(See Appendix for most frequently cited CAS Numbers)*

01 CATEGORY	02 SUBSTANCE NAME	03 CAS NUMBER	04 STORAGE/DISPOSAL METHOD	05 CONCENTRATION	06 MEASURE OF CONCENTRATION
SOL	1,1,1 TCA	71-55-6	Drums	Unknown	

V. FEEDSTOCKS *(See Appendix for CAS Numbers)*

CATEGORY	01 FEEDSTOCK NAME	02 CAS NUMBER	CATEGORY	01 FEEDSTOCK NAME	02 CAS NUMBER
FDS			FDS		
FDS			FDS		
FDS			FDS		
FDS			FDS		

VI. SOURCES OF INFORMATION *(Cite specific references; e.g., state files, sample analysis, reports)*

EPA

POTENTIAL HAZARDOUS WASTE SITE
PRELIMINARY ASSESSMENT
PART 3 - DESCRIPTION OF HAZARDOUS CONDITIONS AND INCIDENTS

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
IL	ILD 005 470 125

II. HAZARDOUS CONDITIONS AND INCIDENTS

01 ☐ A. GROUNDWATER CONTAMINATION — 02 ☐ OBSERVED (DATE: _____) — ☐ POTENTIAL — ☐ ALLEGED

03 POPULATION POTENTIALLY AFFECTED: _____ — 04 NARRATIVE DESCRIPTION

N/A

01 ☐ B. SURFACE WATER CONTAMINATION — 02 ☐ OBSERVED (DATE: _____) — ☐ POTENTIAL — ☐ ALLEGED

03 POPULATION POTENTIALLY AFFECTED: _____ — 04 NARRATIVE DESCRIPTION

N/A

01 ☐ C. CONTAMINATION OF AIR — 02 ☐ OBSERVED (DATE: _____) — ☐ POTENTIAL — ☐ ALLEGED

03 POPULATION POTENTIALLY AFFECTED: _____ — 04 NARRATIVE DESCRIPTION

N/A

01 ☐ D. FIRE/EXPLOSIVE CONDITIONS — 02 ☐ OBSERVED (DATE: _____) — ☐ POTENTIAL — ☐ ALLEGED

03 POPULATION POTENTIALLY AFFECTED: _____ — 04 NARRATIVE DESCRIPTION

N/A

01 ☐ E. DIRECT CONTACT — 02 ☐ OBSERVED (DATE: _____) — ☐ POTENTIAL — ☐ ALLEGED

03 POPULATION POTENTIALLY AFFECTED: _____ — 04 NARRATIVE DESCRIPTION

N/A

01 ☒ F. CONTAMINATION OF SOIL — 02 ☒ OBSERVED (DATE: 6/12/85) — ☐ POTENTIAL — ☐ ALLEGED

03 AREA POTENTIALLY AFFECTED: 1 Acre (Acres) — 04 NARRATIVE DESCRIPTION

Trace amounts of freon was detected in the soil during RCRA Closure Activities. Small amounts did not necessitate remediation.

01 ☐ G. DRINKING WATER CONTAMINATION — 02 ☐ OBSERVED (DATE: _____) — ☐ POTENTIAL — ☐ ALLEGED

03 POPULATION POTENTIALLY AFFECTED: _____ — 04 NARRATIVE DESCRIPTION

N/A

01 ☐ H. WORKER EXPOSURE/INJURY — 02 ☐ OBSERVED (DATE: _____) — ☐ POTENTIAL — ☐ ALLEGED

03 WORKERS POTENTIALLY AFFECTED: _____ — 04 NARRATIVE DESCRIPTION

N/A

01 ☐ I. POPULATION EXPOSURE/INJURY — 02 ☐ OBSERVED (DATE: _____) — ☐ POTENTIAL — ☐ ALLEGED

03 POPULATION POTENTIALLY AFFECTED: _____ — 04 NARRATIVE DESCRIPTION

N/A

EPA

POTENTIAL HAZARDOUS WASTE SITE
PRELIMINARY ASSESSMENT
PART 3 - DESCRIPTION OF HAZARDOUS CONDITIONS AND INCIDENTS

I. IDENTIFICATION	
01 STATE: IL	02 SITE NUMBER: ILD 005 470 125

II. HAZARDOUS CONDITIONS AND INCIDENTS (Continued)

01 ☐ J. DAMAGE TO FLORA — 02 ☐ OBSERVED (DATE: _____) — ☐ POTENTIAL — ☐ ALLEGED

04 NARRATIVE DESCRIPTION

N/A

01 ☐ K. DAMAGE TO FAUNA — 02 ☐ OBSERVED (DATE: _____) — ☐ POTENTIAL — ☐ ALLEGED

04 NARRATIVE DESCRIPTION (Include name(s) of species)

N/A

01 ☐ L. CONTAMINATION OF FOOD CHAIN — 02 ☐ OBSERVED (DATE: _____) — ☐ POTENTIAL — ☐ ALLEGED

04 NARRATIVE DESCRIPTION

N/A

01 ☐ M. UNSTABLE CONTAINMENT OF WASTES — 02 ☐ OBSERVED (DATE: _____) — ☐ POTENTIAL — ☐ ALLEGED

03 POPULATION POTENTIALLY AFFECTED: _____ — 04 NARRATIVE DESCRIPTION

N/A

01 ☐ N. DAMAGE TO OFF-SITE PROPERTY — 02 ☐ OBSERVED (DATE: _____) — ☐ POTENTIAL — ☐ ALLEGED

04 NARRATIVE DESCRIPTION

N/A

01 ☐ O. CONTAMINATION OF SEWERS, STORM DRAINS, WWTPS — ☐ OBSERVED (DATE: _____) — ☐ POTENTIAL — ☐ ALLEGED

04 NARRATIVE DESCRIPTION

N/A

01 ☐ P. ILLEGAL/UNAUTHORIZED DUMPING — 02 ☐ OBSERVED (DATE: _____) — ☐ POTENTIAL — ☐ ALLEGED

04 NARRATIVE DESCRIPTION

N/A

05 DESCRIPTION OF ANY OTHER KNOWN, POTENTIAL, OR ALLEGED HAZARDS

N/A

III. TOTAL POPULATION POTENTIALLY AFFECTED: _____

IV. COMMENTS

N/A

V. SOURCES OF INFORMATION *(Cite specific references; e.g., state files, sample analysis, reports)*

Illinois EPA, US EPA

ATTACIIMENT B

VISUAL SITE INSPECTION SUMMARY AND PHOTOGRAPHS

VISUAL SITE INSPECTION SUMMARY

CTS Electronics Corporation
Sandwich, Illinois
ILD 005 470 125

Date:	April 16, 1991
Facility Representatives:	Norman C. Watkins
Inspection Team:	Jeff Indeck Amy Sapp
Photographer:	Amy Sapp
Weather Conditions:	Overcast, intermittent drizzle, 60°
Summary of Activities:	The VSI began at 9:30 a.m. and included an interview with Mr. Norm Watkins, Chemical Engineer, and a walk-through inspection of the facility. The only evidence of release observed were stains on the floor of the Former Laboratory Area. The VSI was concluded at 3:30 p.m.

Photograph No.: 1 Location: SWMU 1 North of warehouse
Orientation: Southeast Date: April 16, 1991
Description: Outdoor Hazardous Waste Storage Area. Photo shows secured cement pad used for product and hazardous waste storage.

Photograph No.: 2 Location: SWMU 1 North of warehouse
Orientation: Southeast Date: April 16, 1991
Description: Outdoor Hazardous Waste Storage Area. Photo shows barrel storage at time of VSI. Sump and pump are under grate at left.

Photograph No.: 3 Location: SWMU 2 NW corner inside warehouse
Orientation: Northwest Date: April 16, 1991
Description: Indoor hazardous waste satellite accumulation area. Horizontal drums in background store product. Funnels are used for waste transfer.

Photograph No.: 4 Location: SWMU 2 NW corner inside Warehouse
Orientation: North Date: April 16, 1991
Description: Indoor hazardous waste satellite accumulation area. Horizontal drums in background store product. Funnels are used for waste transfer.

Photograph No.: 5 Location: SWMU 3 East end of production building
Orientation: Date: April 16, 1991
Description: Product storage in a satellite accumulation area. Drums are for accumulation of waste oil and grit.

Photograph No.: 6 Location: SWMU 3 East end of production building
Orientation: South Date: April 16, 1991
Description: Red containers on floor are for waste accumulation and containers on table are product.

Photograph No.: 7 Location: SWMU 4 Blank and Lapping Room
Orientation: East Date: April 16, 1991
Description: Primary Waste Accumulation pails. Used for oil/grit mixture.

Photograph No.: 8 Location: SWMU 5 Northeast corner outside of production building
Orientation: East Date: April 16, 1991
Description: Waste Water Pre-Treatment Settling Tanks. Photo shows series of three manways to the underground tanks.

Photograph No.: 9
Orientation: North
Location: SWMU 6 East Dock
Date: April 16, 1991
Description: Waste Water Filter Press. Photograph shows storage area containing filter press.

Photograph No.: 10 Location: AOC 1 Former lab off production office
Orientation: East Date: April 16, 1991
Description: Photo shows vapor degreaser in former laboratory. Note stains on floor.

ATTACHMENT C

VISUAL SITE INSPECTION FIELD NOTES

CTS Microelectronics

5/25/88 Land Ban - Notice of Violations and response.

3/31/88 SO1 unit closed. SO1 still open.
Waste Drum Storage Area
Delete status as a TSD. Become Generator on

3/9/88 Shipment of Wastes

Isopropanol	715 Gal
Freon	275 Gal
111 TCA	110 Gal
Flammable	110 Gal
Haz waste	55 Gal

State Air Permit
State Water Permit

8/26/85 Permit from State for 6 Settling Tanks
T01 Waste Water Treatment - Pretreatment
Waste is Non Hazardous. Sludge & Discharge
6 1500-Gallon Pits.
Cyanide Electroplating no longer used
No F007 F008 F009

Only F002 D001

7/9/86 Generator Only per IEPA

Questions

1. When did storage area start being used.
2. Who are current transporters
3. Who are current disposal facilities.
4. TCA still used in dip tanks for degreasing
5. Is isopropanol still used in cleaning.
6. Did CTS ~~Stopped~~ storing waste in 83.
7. How many employees - 425 as of 86.
   - Hydrite Chemical Co. for Recycling/Disposal at Cottage Grove, WI
   - 111 TCA Recycled on site - Sludge to Hydrite for Di
8. Plating Process is Tin - Any other metals.
   - How is recycling accomplished.
9. QA/QC for Process Chemicals?
10. How are wastes analyzed for manifest offsit
11. Air Permits
12. Water Permits - Settling Tanks.

CHICAGO TELEPHONE SUPPLY.
MAIL ORDER TELEPHONE.
IND, ILL MIN WISC CA
INTERNATIONAL - ASIA,

NOW ELECTRONIC COMPONENTS.

* FACILITY BUILT IN 72 OR 73.

CTS ELECTRONICS CORP.
FREQUENCY CONTROL DIVISION

ALL FREON OUT OF PROCESS 1ST QTR 89
MANIFEST LATER IN 89

START W/ RAW QUARTZ. WAFER/CRYSTAL.
FREQUENCY CLOCK.
1/4" DIA 2-3 MIL THICK
GROUND
OIL & GRIT PETROLEUM BASE ALL GRIND/POLISH
ALSO USE H_2O BASE.
* PITS. SILICON / CARBIDE

DRY TO COMMUNITY DISPOSAL & FILTER PRESS.

OIL & GRIT TO TSD FOR INCIN
AUGMIC.

1,1,1 TCA USE TO WASH OIL & GRIT.

PARTS CLEANING - REMOVE H_2O. FOR PRECISION
1,1,1 - ALPHA, ALCOHOL.

STILL TO RECYCLE 1,1,1

SOLDER - REMOVE FLUX RESIDUE.
BLEN 60/40. USE SOLDER PASTE.

AUGANICS DOES ANALYSIS.
STRICT ABOUT WASTE
— DO OWN ANALYSIS.
MA

LAB PACK FROM LAB CLEANING. ANNUAL HOUSECLEA
OUT OF DATE EPOXY RESIN.
ENGINEER PRODUCT TO TEST
INKS MANUFACTURING.

1,1,1 RECYCLES IF ↓ ALCOHOL CONTENT

ALPHA 565

---

* VAPOR DEGREASING —

← CERAMIC SUBSTRATE - CERAMIC. ELEC. COMPONENT ASSEMBLY
ASSEM

TANKS BUILT IN 74 2x3-1500 GAL TYPICAL

BUD GUSTAFSON - ASST FIRE Chief. Head of Physical

WATER GRINDING TO TROUGH. SOLIDS TO FILTER PRESS = FILTER CAKE. TROUGH IN FLOOR ALSO. USE PRESS TO AVOID FILLING SETTLING TANKS.

* GRINDING ROOM - HEAVY SOLIDS SET. OFF AND OIL & SOLIDS SAT. ACC. ~~AREA~~

USE OIL DRY.

GRINDING DRAINS PET OIL & GRIT INTO BUCKET. TRANSFERED TO DRUM. 2 SMU'S?

* PLATING - LIQUID CAUSTIC / ACIDS - GOLD TIN

FILTER PRESS FOR DE WATERING. DRAINS IN FLOOR: PL

ROSIN FLUX WASTE MIXED WITH ALCOHOL
MAY ALSO SHOW UP AS LAB PACKS

DO PROTOTYPE ~~MFG~~. MOST MFG IN SINGAPORE
EX LAB AREA'S DEEPLY STAINED FLOOR.

HAZ WASTE STORE AREA - SECURED BY FENCE

WATER TO SUMP. MAY NEED NEW

ALWAYS DRUMMED WASTE. SITE USE SINCE AT LEAST 81. PRIMARILY JUNCTION AS GEN SINCE 83. PAD SINCE 88

Haz Waste Stored with product but in a separate area.

2- 3 x 1500 gal. SETTLING TANKS FOR WASTE WATER

1974 - PUT IN TANKS AND BACK HALF Bldg

1966 - Construction of front Bldg

500 employees

FINAL ELECTROPLATING ONLY.

DO NOT DO LIKE THEY USED TO.

VERY SMALL VOLUMES 100 mL

CEASED Lg SCALE OPS 5 YEARS AGO.

WERE Ni TO TIN:

ACID/BASE NEUTRALIZED AND SEWERED.
METALS SEWERED

HELIUM, NITROGEN, CARBON DIOXIDE GASES.
USED AS TEMP CONTROL MEDIA & VACUUM

✓ MSDS ALPHA 565
✓ RECENT LAB ANAL
— ELECTROPLATING NICKEL

Release would flow to Ditch since no storm sewer in Lno. park.

QUESTIONS.

1 How much waste is generated per wk or month
20 BBLS / 90 days [illegible]

✓ 2 Any wells in vicinity of plant. Do have muni well
Downtown by Fire Station - May be down gradient. [illegible]

✓ 3 Any monitoring associated with Air Permits.
[illegible] [illegible] Room, [illegible] Soldering [illegible]

✓ 4 How large is the facility in acres. [illegible]
[illegible] [illegible]

N NE
✓ 5 Plastics and molding companies to North? [illegible]
1. Houses across St. to west. Business [illegible]

6 Drums for oil waste in production area.
Pails → drums → SAT or outside?
RD → BAT → Outside

7 What is done with filter cake. Community L.
Barrels, Dumpster? Non Haz [illegible]

8 Acetone in process. How is it used?
Mix c̄ powder coating, coat parts 10:1 Water: [illegible]

9 When was warehouse constructed 1972? Baked [illegible]
Watch crystal mfg. waste.

10 Satellite Accum Area
Start - 1983
Size - 6 Drums 1/w Stream
Contain

In side plant [illegible]

No waste [illegible]

11 Pad after clean up
Closure incl. steam clean of pad 10-5-87
Unknown. Pad not until final closure.

12 8,000 gal tank for oil & grit sludge per 87 [illegible]
Special waste oil

13 Where is trough system. Is floor & above floor together
Where does San Sew tie to settle Tanks

14 Waste Water Filter press -
When start - 2 years
Volumes / How often 100 gal = 15 cu ft / mo
Criteria for use [illegible]
Where [illegible] Tank [illegible]

15 Where does flow in former lab drain.
no drains.

16 When did Haz Waste ben & Storage begin
Denatured alcohol Same waste A IPA

17 When did Methyl Alcohol cease use
" " Methylene Chloride " " 5yrs
How/where were They USED. 5gal/yr
Acetone ? Thinner for pa
Flammable St
No Lost to va

18 Former Barrel Storage on East
Asphalt or Gravel Park Lot limestone
parking, overflow.

now
EIEC comp
MARKED
Ink. St
on brass
after so
Spec fo
permanen

SWMU

(1) HAZ STORAGE
(C) SAT STORAGE
(D) TANKS - WASTE WATER PRE TREATMENT SETTL.
(A) FILTER SYSTEM - AOC? PORTABLE SYSTEM
STILLS ON VAPOR DEGREASERS? No - Close

AOC
(E) Misc. loss FROM PRODUCTION (VARIOUS)
(B) ~~Collection~~ ACCUMULATION BUCKETS (VARIOUS) RED
(1) AOC EX LAB Room w/ STAINED F

⊙ ASK SKIN ABOUT VENTINGS

*(7) Old open BARREL storage area

ASK NORM ABOUT
ACETONE USE - NO WASTE
PORTABILITY OF PRESSURE FILTER. YES
ARE SLUDGES DRUMMED BEFORE USE YES
IS FILTER CAKE OR SUPERNATENT DRUMM
NAME OF X-LAB ROOM & DEGREASER YES

On Site Reclamation of TCA (Methyl Chl
How is Freon in Soil Explained?
All w/o about old open barrel Storage

QUESTIONS.

SWMU 1 Outdoor

DATE STARTUP - 1981/1983?

SWMU 2 Indoor

DATE OF START UP 83

HISTORY OF RELEASES none

SWMU 3 - Drums & Containers

Date of start up. - Always / 5 gal

Wastes managed. oils. Only in 55

SWMU 4 - Pails -

Date of Start up - always.

SWMU-5 WWTT 1974

Floor Troughs 1974.

Above floor troughs 1974

Inspections.

Release Controls -

SWMU 6 Filter Press

Start up.

Pails or Trough → drum → press → drum? Lid

Portable. Where houses.

MISC.

TOTAL TOXIC ORGANICS 1.37 mg/l max disc
FREON USED IN DEGREASING & FLUX REMOVAL

Background off property to North.

May be spill but cleaned up to State's clean limits

No explanations.

Since 81 < 81
Accum Waste.
Always. Don't know where it went.

Cleaning Masks & Blanks
Use acids
Staining - old concrete floor
Tile 3 years
Stain result of degreaser cleaning
Solvent / still bottoms.
No drains in area.
all drains plugged except rest

Fields to S & E Sold off
50' Past Driveway to East

Recommends.

Drums open to volatilize.
Oil Drum ⇒ Waste
More Grit ⇒

CTS Electronics | 4/16/91

Worm Watkins

Knights Division → Frequency Control Division

CTS stands for Chicago Telephone Supplies started by James Knights then sold to CTS Corporation

Built early 1970s (72 or 73)

Closed as a TSD, closed the storage area, but it's used for temp. storage.

As of 1st Oct 1989 CTS eliminated the use of Freons

Process = Frequency Control Devices

Round wafer of quartz used to generate a standard frequency signal for data telecommunications or a clock oscillator for computers.

Start with quartz bar stock

Wafer is 2-3 mm thick 1/4" diameter

(1) Soldiers cut up the bar stock

ATTACHMENT D

PERMITS

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY
WATER POLLUTION CONTROL PERMIT

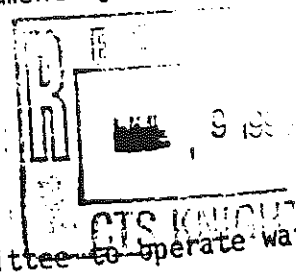
PERMIT NO.: 1990-EP-0801

LOG NUMBERS: 0801-90

DATE ISSUED: July 3, 1990

FINAL PLANS, SPECIFICATIONS, APPLICATION
AND SUPPORTING DOCUMENTS
PREPARED BY: Norm Watkins of CTS Corporation

SUBJECT: CTS CORPORATION, KNIGHTS DIVISION -- Pretreatment System for Electrical and Electronic Component Wastewaters -- Sandwich STP



PERMITTEE TO OPERATE
CTS Corporation, Knights Division
400 Reimann Avenue
Sandwich, Illinois 60548

Permit is hereby granted to the above designated permittee to operate water pollution control facilities described as follows:

Two groups of three 1500-gallon concrete septic tanks operated in series designed to settle grit particles at a maximum flow rate of 1200 GPD prior to discharge into Sandwich STP.

This Operating Permit expires on July 1, 1995.

This Permit renews and replaces Permit Number 1985-EP-2607 which was previously issued for the herein permitted facilities.

This Permit is issued subject to the following Special Condition(s). If such Special Condition(s) require(s) additional or revised facilities, satisfactory engineering plan documents must be submitted to this Agency for review and approval for issuance of a Supplement Permit.

SPECIAL CONDITION 1: The operation of the pretreatment facilities must be under the direct and active field supervision of a certified industrial treatment plant operator in accordance with the State of Illinois Rules and Regulations, Title 35, Subtitle C, Chapter 1, Part 312.

SPECIAL CONDITION 2: The issuance of this permit does not relieve the permittee of the responsibility of complying with any limitations and provisions imposed by the City of Sandwich.

Continued on Page 2

THE STANDARD CONDITIONS OF ISSUANCE INDICATED ON THE REVERSE SIDE MUST BE COMPLIED WITH IN FULL. READ ALL CONDITIONS CAREFULLY.

DIVISION OF WATER POLLUTION CONTROL

TGM:JOP/mls/2288n/3-4
cc: EPA - Region 1
City of Sandwich
Record
Binds

Thomas G. McSwiggin, P.E.
Manager, Permit Section

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY
WATER POLLUTION CONTROL PERMIT

LOG NUMBERS: 0801-90 PERMIT NO.: 1990-EP-0801

FINAL PLANS, SPECIFICATIONS, APPLICATION AND SUPPORTING DOCUMENTS DATE ISSUED: July 3, 1990
PREPARED BY: Norm Watkins of CTS Corporation

SUBJECT: CTS CORPORATION, KNIGHTS DIVISION -- Pretreatment System for Electrical and Electronic Component Wastewaters -- Sandwich STP

SPECIAL CONDITION 3: The issuance of this permit does not relieve the permittee of the responsibility of complying with 35 Ill. Adm. Code, Part 307 and/or the General Pretreatment Regulations (40 CFR 403) and any guidelines developed pursuant to Section 301, 306, or 307 of the Federal Clean Water Act of 1977. The guidelines developed for the Electrical and Electronic Components Point Source Category (40 CFR 469 Subpart B) limit the pollutants from facilities as follows:

Pollutant	1 Day Max (mg/l)	30 Day Avg (mg/l)
TTO[1]	1.37	----
Arsenic (T)[2]	2.09	0.83

[1] In lieu of monitoring for TTO, the permittee may make the certification statement of 40 CFR 469.13(c).

[2] The arsenic (T) limitation only applies to manufacturers of gallium or indium arsenide crystals.

CONDITION 4: Waste generated from septic tank clean-out shall be disposed of in a manner acceptable to this Agency.

Illinois Environmental Protection Agency • P.O. Box 19276, Springfield, IL 62794-9276

APPLICATION FOR PERMIT RENEWAL/OPERATING PERMIT

NOVEMBER 1, 1988

CTS KNIGHTS INC
ATTENTION: LARRY K SHAUM
400 REIMANN
SANDWICH IL 60548

APPLICATION NO: 75010028
ID NUMBER: 037485AAA
OPERATION OF:
DAYTON EXHAUST BLOWER
LOCATION:
CTS KNIGHTS INC
400 REIMANN SANDWICH

THE ABOVE REFERENCED OPERATING PERMIT WILL EXPIRE ON MARCH 29, 1989. THE AGENCY RECOMMENDS THAT YOU APPLY FOR A RENEWAL OF THIS OPERATING PERMIT AT LEAST NINETY (90) DAYS PRIOR TO ITS EXPIRATION.

IF YOUR OPERATION IS UNCHANGED, YOU MAY RENEW YOUR PERMIT BY SIGNING IN THE SPACE PROVIDED BELOW, KEEPING ONE COPY FOR YOUR RECORDS, AND RETURNING THIS CORRESPONDENCE TO THE AGENCY. WHEN DATED AND SIGNED BY THE AGENCY THIS APPLICATION WILL BE RETURNED TO YOU AND WILL BE YOUR PERMIT.

IF THERE HAS BEEN A CHANGE OF OWNERSHIP OR ADDRESS, PLEASE INDICATE THIS BY CORRECTING THE ABOVE INFORMATION. IF YOUR OPERATION HAS CHANGED FROM THAT DESCRIBED IN THE APPLICATION FILED WITH THE AGENCY, THEN YOU MUST USE APPROPRIATE FORMS TO DESCRIBE ALL CHANGES AS PART OF THE APPLICATION. (SEE ENCLOSED 'REQUEST FOR PERMIT FORMS' APC-209).

IF THE OPERATION HAS BEEN PERMANENTLY DISCONTINUED OR INCLUDED IN ANOTHER PERMIT, PLEASE SEND A LETTER TO THE AGENCY WITHDRAWING THIS PERMIT. IF THE OPERATION HAS BEEN INCLUDED IN ANOTHER PERMIT, PLEASE PROVIDE THE PERMIT NUMBER OF THE NEW PERMIT(S) IN YOUR WITHDRAWAL LETTER.

I CERTIFY THAT THE ORIGINAL PERMIT INFORMATION REMAINS TRUE, CORRECT, AND CURRENT AND THAT I AM AUTHORIZED TO EXECUTE THIS APPLICATION FOR PERMIT RENEWAL.

Terry J. Luxmore 2/10/89 Terry J. Luxmore, President and General Manager
SIGNATURE DATE PRINTED NAME AND TITLE OF SIGNER

FOR AGENCY USE ONLY

PERMIT EXPIRATION DATE: March 7, 1994

PERMIT IS GRANTED TO OPERATE THE ABOVE REFERENCED EQUIPMENT SUBJECT TO STANDARD CONDITIONS ATTACHED HERETO AND ANY SPECIAL CONDITIONS OF THE PREVIOUSLY GRANTED OPERATING PERMIT.

Terry Sweitzer /mer

TERRY SWEITZER, P.E.
MANAGER, PERMIT SECTION
DIVISION OF AIR POLLUTION CONTROL

Illinois Environmental Protection Agency • P.O. Box 19276, Springfield, IL 62794-9276

APPLICATION FOR PERMIT RENEWAL/OPERATING PERMIT

NOVEMBER 1, 1988

CTS KNIGHTS INC
ATTENTION: LARRY K SHAUM
400 REIMANN
SANDWICH IL 60548

APPLICATION NO: 75010026
ID NUMBER: 037485AAA
OPERATION OF:
EXHAUST BLOWER SOLDERING
LOCATION:
CTS KNIGHTS INC
400 REIMANN SANDWICH

THE ABOVE REFERENCED OPERATING PERMIT WILL EXPIRE ON MARCH 29, 1989 . THE AGENCY RECOMMENDS THAT YOU APPLY FOR A RENEWAL OF THIS OPERATING PERMIT AT LEAST NINETY (90) DAYS PRIOR TO ITS EXPIRATION.

IF YOUR OPERATION IS UNCHANGED, YOU MAY RENEW YOUR PERMIT BY SIGNING IN THE SPACE PROVIDED BELOW, KEEPING ONE COPY FOR YOUR RECORDS, AND RETURNING THIS CORRESPONDENCE TO THE AGENCY. WHEN DATED AND SIGNED BY THE AGENCY THIS APPLICATION WILL BE RETURNED TO YOU AND WILL BE YOUR PERMIT.

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I CERTIFY THAT THE ORIGINAL PERMIT INFORMATION REMAINS TRUE, CORRECT, AND CURRENT AND THAT I AM AUTHORIZED TO EXECUTE THIS APPLICATION FOR PERMIT RENEWAL.

Terry J. Luxmore | 2/10/89 | Terry J. Luxmore, President and General Manager

SIGNATURE | DATE | PRINTED NAME AND TITLE OF SIGNER

FOR AGENCY USE ONLY

PERMIT EXPIRATION DATE: March 6, 1994

PERMIT IS GRANTED TO OPERATE THE ABOVE REFERENCED EQUIPMENT SUBJECT TO STANDARD CONDITIONS ATTACHED HERETO AND ANY SPECIAL CONDITIONS OF THE PREVIOUSLY GRANTED OPERATING PERMIT.

Terry Sweitzer for

TERRY SWEITZER, P.E.
MANAGER, PERMIT SECTION
DIVISION OF AIR POLLUTION CONTROL

Illinois Environmental Protection Agency • P.O. Box 19276, Springfield, IL 62794-9276

APPLICATION FOR PERMIT RENEWAL/OPERATING PERMIT

NOVEMBER 1, 1988

CTS KNIGHTS INC
ATTENTION: LARRY K SHAUM
400 REIMANN
SANDWICH IL 60548

APPLICATION NO: 75010027
ID NUMBER: 037485AAA 84116LR
OPERATION OF:
BOILER GAS
LOCATION:
CTS KNIGHTS INC
400 REIMANN SANDWICH

THE ABOVE REFERENCED OPERATING PERMIT WILL EXPIRE ON MARCH 29, 1989 . THE AGENCY RECOMMENDS THAT YOU APPLY FOR A RENEWAL OF THIS OPERATING PERMIT AT LEAST NINETY (90) DAYS PRIOR TO ITS EXPIRATION.

IF YOUR OPERATION IS UNCHANGED, YOU MAY RENEW YOUR PERMIT BY SIGNING IN THE SPACE PROVIDED BELOW, KEEPING ONE COPY FOR YOUR RECORDS, AND RETURNING THIS CORRESPONDENCE TO THE AGENCY. WHEN DATED AND SIGNED BY THE AGENCY THIS APPLICATION WILL BE RETURNED TO YOU AND WILL BE YOUR PERMIT.

IF THERE HAS BEEN A CHANGE OF OWNERSHIP OR ADDRESS, PLEASE INDICATE THIS BY CORRECTING THE ABOVE INFORMATION. IF YOUR OPERATION HAS CHANGED FROM THAT DESCRIBED IN THE APPLICATION FILED WITH THE AGENCY, THEN YOU MUST USE APPROPRIATE FORMS TO DESCRIBE ALL CHANGES AS PART OF THE APPLICATION. (SEE ENCLOSED 'REQUEST FOR PERMIT FORMS' APC-209). FEB 1 5

IF THE OPERATION HAS BEEN PERMANENTLY DISCONTINUED OR INCLUDED IN ANOTHER PERMIT, PLEASE SEND A LETTER TO THE AGENCY WITHDRAWING THIS PERMIT. IF THE OPERATION HAS BEEN INCLUDED IN ANOTHER PERMIT, PLEASE PROVIDE THE PERMIT NUMBER OF THE NEW PERMIT(S) IN YOUR WITHDRAWAL LETTER.

I CERTIFY THAT THE ORIGINAL PERMIT INFORMATION REMAINS TRUE, CORRECT, AND CURRENT AND THAT I AM AUTHORIZED TO EXECUTE THIS APPLICATION FOR PERMIT RENEWAL.

Terry J. Luxmore 2/10/89 Terry J. Luxmore, President & General Manager

SIGNATURE DATE PRINTED NAME AND TITLE OF SIGNER

FOR AGENCY USE ONLY

PERMIT EXPIRATION DATE: March 7, 1994

PERMIT IS GRANTED TO OPERATE THE ABOVE REFERENCED EQUIPMENT SUBJECT TO STANDARD CONDITIONS ATTACHED HERETO AND ANY SPECIAL CONDITIONS OF THE PREVIOUSLY GRANTED OPERATING PERMIT.

Terry Sweitzer/HBA

TERRY SWEITZER, P.E.
MANAGER, PERMIT SECTION
DIVISION OF AIR POLLUTION CONTROL

ATTACHMENT E

ANALYTICAL DATA

GULF COAST LABORATORIES, INC.
2417 Bond St., University Park, Illinois 60466
Phones (312) 534-5200 (219) 885-7077 (815) 7:

ANALYTICAL REPORT

TO: CTS Electronics Corporation
400 Reimann Avenue
Sandwich, Il 60548

ATTN: Mr. Norm Watkins

DATE: June 12, 1985

RE: Soil Sample #4
Sample Date: 05/09/85
GCL# 63806
CORRECTED REPORT

Volatile Organics	Results	
Cis-1,3-Dichloropropene	< 1	mg/kg
Trans-1,3-Dichloropropene	< 1	mg/kg
Ethylbenzene	< 1	mg/kg
Bromomethane	< 1	mg/kg
Chloromethane	< 1	mg/kg
Methylene Chloride	< 1	mg/kg
1,1,2,2-Tetrachloroethane	< 1	mg/kg
Tetrachloroethylene	< 1	mg/kg
Toluene	< 1	mg/kg
1,2-Trans-Dichloroethylene	< 1	mg/kg
1,1,1-Trichloroethane	< 1	mg/kg
1,1,2-Trichloroethane	< 1	mg/kg
Trichloroethylene	< 1	mg/kg
Trichlorofluoromethane	1.0	mg/kg
Vinyl Chloride	< 1	mg/kg

RECEIVED
DEC 04 198

Approved: Donald Lippold

Analyst _____ Date 6/1

GULF COAST LABORATORIES, INC.
2417 Bond St., University Park, Illinois 60466
Phones (312) 534-5200 (219) 885-7077 (815) 7

ANALYTICAL REPORT

TO: CTS Electronics Corporation
400 Reimann Avenue
Sandwich, Il 60548

ATTN: Mr. Norm Watkins

DATE: June 12, 1985

RE: Soil Sample #5
Sample Date: 05/09/85
GCL# 63807
CORRECTED REPORT

Volatile Organics	Results	
Cis-1,3-Dichloropropene	< 1	mg/kg
Trans-1,3-Dichloropropene	< 1	mg/kg
Ethylbenzene	< 1	mg/kg
Bromomethane	< 1	mg/kg
Chloromethane	< 1	mg/kg
Methylene Chloride	< 1	mg/kg
1,1,2,2-Tetrachloroethane	< 1	mg/kg
Tetrachloroethylene	< 1	mg/kg
Toluene	< 1	mg/kg
1,2-Trans-Dichloroethylene	< 1	mg/kg
1,1,1-Trichloroethane	< 1	mg/kg
1,1,2-Trichloroethane	< 1	mg/kg
Trichloroethylene	< 1	mg/kg
Trichlorofluoromethane	1.7	mg/kg
Vinyl Chloride	< 1	mg/kg

RECEIVED
DEC 04 1985

Approved: Donald Gruppe

Analyst _____ Date 6

GULF COAST LABORATORIES, INC.
2417 Bond St., University Park, Illinois 60466
Phones (312) 534-5200 (219) 885-7077 (815) 72

ANALYTICAL REPORT

TO: CTS Electronics Corporation
400 Reimann Avenue
Sandwich, Il 60548

ATTN: Mr. Norm Watkins

DATE: June 12, 1985

RE: Soil Sample #6 (BACKGROUND)
Sample Date: 05/09/85
GCL# 63808
CORRECTED REPORT

Volatile Organics	Results	
Cis-1,3-Dichloropropene	< 1	mg/kg
Trans-1,3-Dichloropropene	< 1	mg/kg
Ethylbenzene	< 1	mg/kg
Bromomethane	< 1	mg/kg
Chloromethane	< 1	mg/kg
Methylene Chloride	< 1	mg/kg
1,1,2,2-Tetrachloroethane	< 1	mg/kg
Tetrachloroethylene	< 1	mg/kg
Toluene	< 1	mg/kg
1,2-Trans-Dichloroethylene	< 1	mg/kg
1,1,1-Trichloroethane	< 1	mg/kg
1,1,2-Trichloroethane	< 1	mg/kg
Trichloroethylene	< 1	mg/kg
Trichlorofluoromethane	1.9	mg/kg
Vinyl Chloride	< 1	mg/kg

RECEIVED
DEC 04 1985

Approved: Donald Shipley

Analyst _____ Date 6/1

GULF COAST LABORATORIES, INC.
2417 Bond St., University Park, Illinois 60466
Phones (312) 534-5200 (219) 885-7077 (815) 723-73

ANALYTICAL REPORT

TO: CTS Electronics Corporation
400 Reimann Avenue
Sandwich, IL 60548

ATTN: Mr. Norm Watkins

DATE: August 12, 1987

RE: Soil Sample #3

Sample Date: 07/29/87
Date Received: 07/29/87
GCL# 110250

COMPOUNDS	RESULT	DETECTION LIMIT			
Methanol	BDL	30	mg/kg	U	W
Isopropyl Alcohol	BDL	0.100	mg/kg	U	W
1,1,2-Trichloro-1,2,2-Trifluoroethane	0.001	0.010	mg/kg	J	W
Trichlorofluoromethane	0.002	0.010	mg/kg	J	W
Total Solids	81.2 %				

GULF COAST LABORATORIES, INC.
2417 Bond St., University Park, Illinois 60466
Phones (312) 534-5200 (219) 885-7077 (815) 723

ANALYTICAL REPORT

TO: CTS Electronics Corporation
400 Reimann Avenue
Sandwich, IL 60548

ATTN: Mr. Norm Watkins

DATE: August 12, 1987

RE: Soil Sample #4

Sample Date: 07/29/87
Date Received: 07/29/87
GCL# 110251

COMPOUNDS	RESULT	DETECTION LIMIT			
Methanol	BDL	30	mg/kg	U	W
Isopropyl Alcohol	BDL	0.100	mg/kg	U	W
1,1,2-Trichloro-1,2,2-Trifluoroethane	0.002	0.010	mg/kg	J	W
Trichlorofluoromethane	BDL	0.010	mg/kg	U	W
Total Solids	79.0 %				

GULF COAST LABORATORIES, INC.
2417 Bond St., University Park, Illinois 60466
Phones (312) 534-5200 (219) 885-7077 (815) 723-7

The following is a list of flags that Gulf Coast Laboratories frequently uses on our analytical reports. All flags may not be applicable for the enclosed reports.

B - Indicates the compound was found in the blank as well as the sample.

C - Pesticide compound confirmed by GC/MS

d - Result is on a dry weight basis

D - Indicates the compound was identified in an analysis at a secondary dilution factor. If a sample is re-analyzed at a higher dilution, the "DL" suffix is appended to sample numbers.

e - Concentrations exceed calibration range of the instrument for that specific analysis.

E - Severe matrix interference

J - Indicates an estimated value which is below detection limit

P - Peaks present but do not appear to be PCBs

R - Spike recovery not within control limit

S - Indicates value determined by Method of Standard Addition

U - Indicates compound was analyzed for but not detected

W - Result is on an "as is basis" (wet weight)

BDL - Below Detection Limit

NA - Not Applicable

NR - Not Required

* - Duplicate not within control limits

+ - Correlation coefficient for MSA <0.995

Closure 25-M-1

Components for Electronics

Knights Division
Electronic Products Group
In Illinois dba
CTS Electronics Corporation

Sandwich, Illinois 60548

TWX: 910-642-0860
FAX 815-786-9743

CTS®

July 15, 1987

Mr. G. Tod Rowe
Permit Section
Division of Land Pollution Control
Ill. EPA
2200 Churchill Road
Springfield, IL 62706

Subject: Closure Plan CTS Knights ILD005470125

Dear Mr. Rowe

This letter is to acknowledge receipt of your correspondence of June 23, 1987, and to request additional time to develop a complete response to those issues mentioned in your letter. As discussed between us and also between you and Marvin Gobles of our Corporate office, the items requested in your letter, particularly the additional sampling and analytical work, cannot be provided within the 30 days as requested in you letter. Therefore, CTS respectfully requests an additional 60 days beyond that mentioned in the June 23 correspondence to adequately address all issues and report those results to your office.

Soil samples will be taken at the storage area in accordance with the closure plan, and will be analyzed for isopropyl alchol, methyl alcohol, trichlorotrifluoroethane (Freon TF, the freon used at this facility). The sample will also be analyzed for trichlorofluoromethane (the Freon found in excess of 1mg/kg, but not used at this facility).

We look forward to resolving all outstanding issues and obtaining acceptance of closure from your office before the end of the year. The additional time requested should allow us to do a thorough job in providing the data and other information leading up to report submission.

Sincerely,

CTS CORPORATION
Knights Division
Electronic Products Group

Norm Watkins
Environmental Coordinator

MATERIAL SAFETY DATA SHEET

APR 15

EFFECTIVE DATE: October, 1985

Union Carbide Corporation urges the customer receiving this Material Safety Data Sheet to study it carefully to become aware of hazards, if any, of the product involved. In the interest of safety you should (1) notify your employees, agents, and contractors of the information on this sheet, (2) furnish a copy to each of your customers for the product, and (3) request your customers to inform their employees and customers as well.

I. IDENTIFICATION

PRODUCT NAME: Sonic-Solve® 113 Lonco

CHEMICAL NAME: NA

CHEMICAL FAMILY: Organic Mixture

FORMULA: NA

MOLECULAR WEIGHT: NA

SYNONYMS: Cleaning Solvent

DEPARTMENT OF TRANSPORTATION

HAZARD CLASSIFICATION: NA

SHIPPING NAME: NA

II. PHYSICAL DATA

BOILING POINT, 760 mm. Hg	75°F (Initial)	FREEZING POINT	NA
SPECIFIC GRAVITY (H_2O = 1)	1.25	VAPOR PRESSURE	100
VAPOR DENSITY (air = 1)	4-5	SOLUBILITY IN WATER, % BY WT.	Limited
PER CENT VOLATILES BY VOLUME	100%	EVAPORATION RATE (Butyl Acetate = 1)	>1
APPEARANCE AND ODOR	Colorless Liquid with ether-like odor.		

III. INGREDIENTS

MATERIAL	%	PEL (units)	TLV (units)	CAS NUMBER
Isopropanol	< 15	400ppm	400ppm	67-63-0
1,1,1 Trichloroethane	< 70	350ppm	350ppm	71-55-6
Trichlorofluoromethane	< 35	1000ppm	1000ppm (C)	75-69-4

IV. FIRE AND EXPLOSION HAZARD DATA

FLASH POINT [test method(s)]	None - Setaflash Closed cup.
FLAMMABLE LIMITS IN AIR, % by volume	LOWER: NA; UPPER: NA
EXTINGUISHING MEDIA	Carbon dioxide, dry chemical, foam, water-fog.
SPECIAL FIRE FIGHTING PROCEDURES	Use blanket effect to smother fire, use water only in fine mist or spray. Fire fighters should use respiratory protection for fumes and toxic degradation products.
UNUSUAL FIRE AND EXPLOSION HAZARDS	Vapors can be ignited by high intensity ignition sources and decomposed to form hydrogen chloride and possibly phosgene.

EMERGENCY PHONE NUMBER: Union Carbide H.E.L.P. (304) 744-3487 This number is available days, nights, weekends, and holidays.

London Chemical Co., 240 Foster, Bensenville, Illinois 60106
Subsidiary UNION CARBIDE CORPORATION, Electronics Division, Old Ridgebury Road, Danbury, CT 06817

Ashland Chemical Company
DIVISION OF ASHLAND OIL, INC.
P.O. BOX 2219, COLUMBUS, OHIO 43216 • (614) 889-3333

MATERIAL SAFETY DATA SHEET

ACCEPTED BY O.S.H.A. AS ESSENTIALLY SIMILIAR TO O.S.H.A. FORM 20

24-HOUR EMERGENCY TELEPHONE: 606-324-1133 (LOCATED AT ASHLAND, KENTUCKY)

ASHLAND PRODUCT NAME: FREON TMS 650#

CTS KNIGHTS
400 REIMANN RD
SANDWICH IL 60548

05 50 021 1420830-
DATA SHEET NO: 0016546-002
LATEST REVISION DATE: 06/29-79171
PRODUCT: 3400371
INVOICE: 966440
INVOICE DATE: 06/09/81
TO:

ATTN: PURCHASING/SAFETY DEPT.

SECTION I-PRODUCT IDENTIFICATION

GENERAL OR GENERIC ID: CHLORINATED HYDROCARBON

HAZARD CLASSIFICATION: (99) NOT APPLICABLE

SECTION II-HAZARDOUS COMPONENTS

INGREDIENT	PERCENT	PEL
FREON TMS	90-95%	1000 PPM
METHANOL	5-10%	200 PPM

SECTION III-PHYSICAL DATA

PROPERTY	REFINEMENT	MEASUREMENT
INITIAL BOILING POINT	FOR PRODUCT	103.00 DEG F (39.44 DEG C) @ 760.00 MMHG
VAPOR PRESSURE	FOR PRODUCT	273.00 MMHG @ 77.00 DEG F (25.00 DEG C)
VAPOR DENSITY	AIR = 1	2.8
SPECIFIC GRAVITY		1.520 @ 77.00 DEG F (25.00 DEG C)
PERCENT VOLATILES		100.00 %
EVAPORATION RATE	UNAVAILABLE	

SECTION IV-FIRE AND EXPLOSION DATA

FLASH POINT(CLOSED CUP) NOT APPLICABLE

LOWER EXPLOSIVE LIMIT NOT APPLICABLE

EXTINGUISHING MEDIA:

HAZARDOUS DECOMPOSITION PRODUCTS: MAY FORM TOXIC MATERIALS:, HYDROGEN CHLORIDE, PHOSGENE, HYDROGEN FLUORIDE, ETC.

SPECIAL FIREFIGHTING PROCEDURES: SELF-CONTAINED BREATHING APPARATUS WITH A FULL FACEPIECE OPERATED IN PRESSURE-DEMAND OR OTHER POSITIVE PRESSURE MODE.

SECTION V-HEALTH HAZARD DATA

PERMISSIBLE EXPOSURE LEVEL: NOT ESTABLISHED FOR PRODUCT. SEE SECTION II.

EFFECTS OF OVEREXPOSURE: FOR PRODUCT

EYES - CAN CAUSE MODERATE IRRITATION, REDNESS, TEARING.
SKIN - CAN CAUSE SLIGHT IRRITATION.
BREATHING - EXCESSIVE INHALATION OF VAPORS CAN CAUSE NASAL AND RESPIRATORY IRRITATION, DIZZINESS, WEAKNESS, FATIGUE, NAUSEA, HEADACHE, POSSIBLE UNCONSCIOUSNESS, AND EVEN ASPHYXIATION.
SWALLOWING - CAN CAUSE GASTROINTESTINAL IRRITATION, NAUSEA, VOMITING, DIARRHEA, BLINDNESS AND DEATH.

FIRST AID:

IF ON SKIN: THOROUGHLY WASH EXPOSED AREA WITH SOAP AND WATER. REMOVE CONTAMINATED CLOTHING. LAUNDER CONTAMINATED CLOTHING BEFORE RE-USE.

IF IN EYES: FLUSH WITH LARGE AMOUNTS OF WATER, LIFTING UPPER AND LOWER LIDS OCCASIONALLY, GET MEDICAL ATTENTION.

IF SWALLOWED: GIVE TWO GLASSES OF WATER; INDUCE VOMITING IMMEDIATELY BY STICKING FINGER DOWN THROAT. CALL A PHYSICIAN. NEVER GIVE ANYTHING BY MOUTH TO AN UNCONSCIOUS PERSON.

IF BREATHED: IF AFFECTED, REMOVE INDIVIDUAL TO FRESH AIR. IF BREATHING IS DIFFICULT, ADMINISTER OXYGEN. IF BREATHING HAS STOPPED GIVE ARTIFICIAL RESPIRATION. KEEP PERSON WARM, QUIET AND GET MEDICAL ATTENTION.

CONTINUED ON PAGE: 2

TERRY CLARK

U.S. DEPARTMENT OF LABOR
Occupational Safety and Health Administration

Form Approved OMB No. 44-R1367

SEP 28 1987

IEPA/DLPC

MATERIAL SAFETY DATA SHEET

MSDS-90

Required under USDL Safety and Health Regulations for Ship Repairing, Shipbuilding, and Shipbreaking (29 CFR 1915, 1916, 1917)

SECTION I

MANUFACTURER'S NAME	EMERGENCY TELEPHONE NO.
Alpha Metals, Inc.	See page 5
ADDRESS (Number, Street, City, State, and ZIP Code) 600 Route 440, Jersey City, New Jersey 07304	
Electronic Assembly Cleaner	TRADE NAME AND SYNONYMS Alpha No. 565 Cleaner
Azeotropic Blend	FORMULA See Composition*

SECTION II - HAZARDOUS INGREDIENTS

PAINTS, PRESERVATIVES, & SOLVENTS	%	TLV (Units)	ALLOYS AND METALLIC COATINGS	%	TLV (Units)
PIGMENTS			BASE METAL		
CATALYST #			ALLOYS		
VEHICLE			METALLIC COATINGS		
SOLVENTS			FILLER METAL PLUS COATING OR CORE FLUX		
ADDITIVES			OTHERS		
OTHERS					

ILL. E.P.A. — D.L.P.C.
STATE OF ILLINOIS

Composition: (No. 565 Cleaner) *Patent Pending	%	TLV (Units)
A blend of 1,1,1-Trichloroethane and Alcohol.		
(Contains more than 90% of 1,1,1-Trichloroethane)		

SECTION III - PHYSICAL DATA

Calculated Values*

BOILING POINT (°F.) 74°C.	165°F.	SPECIFIC GRAVITY (H_2O=1) gm/cc @ 77°F	1.282
VAPOR PRESSURE (mm Hg.) at 20°C*	92.8	PERCENT, VOLATILE BY VOLUME (%)	100
VAPOR DENSITY (AIR=1) *	4.5	EVAPORATION RATE (Ether =1)	0.39
SOLUBILITY IN WATER	Slight	Freezing Point °C (°F)	-34 (-30)
APPEARANCE AND ODOR Clear, colorless liquid, mildly sweet.			

SECTION IV - FIRE AND EXPLOSION HAZARD DATA Calc. *

FLASH POINT (Method used)	FLAMMABLE LIMITS	Lel	Uel
Tag Open Cup and Tag Close Cup--None*	% by Vol(air 25°C) *	7.0	11.0

EXTINGUISHING MEDIA
Carbon dioxide, water fog.

SPECIAL FIRE FIGHTING PROCEDURES
Self-contained respiratory equipment. Not considered a flammable liquid hazard under normal conditions of industrial use.

UNUSUAL FIRE AND EXPLOSION HAZARDS
Decomposes with fire or very hot surfaces to acidic gases and other highly toxic substances.

(Continued on reverse side)

Company : CIS KNIGHTS
Location: SANDWICH, IL
Customer Nr:
Salesperson: SKOMER Branch: R
Analyzed By: MR Date: 08/07/90
Approved By: SS

==========

Lab Analysis Nr: A031034
Sales lab Nr: S000030
Incoming Nr:
Retain Lab Nr:
PCB Lab Nr:
Lab Type: WSA
Part Nr: RWD00801
Waste Master Nr: 00014050
Authorization Nr:
Batch Nr:
Lot Nr:
Other Nr:

==========

LABORATORY DATA

Waste Density: pH:
Solvent Density: pH:
Total Distillate: Solids:
% Yield:
% Chlorides: 0.23 PCB (ppm):
Acid Acceptance:
APHA Color: Odor:
BTU/lb: BTU/Gal:
% Water by KF:
Flash Point (TCC Deg F):

==========

Material Comments: QUARTZ / GLASS
Recommend: INCINERATION ONLY
Label: NON FLAMMABLE
UN/NA Nr:
Dot Hazard Class:
EPA Waste Code Nr:
DOT PSN:

==========

Comments:
"QUAKER GRINDS"
SAMPLE DID NOT BURN
NO HAZARD CLASS

*** Information contained is believed t[illegible]ue ***
*** correct to the best of our knowledge ***
*** and based on the sample supp[illegible]ed. ***

CHROMATOGRAPHIC ANALYSIS

----ACTIVES----
0.0 % Acetone
0.0 % N-Butyl Acetate
0.0 % Cyclohexanone
0.0 % Ethyl Acetate
0.0 % Glycol Ether EB
0.0 % Glycol Ether EE
0.0 % Glycol Ether EEAc
0.0 % Glycol Ether EM
0.0 % Glycol Ether EEP
0.0 % Glycol Ether EP
0.0 % Glycol Ether PM
0.0 % Glycol Ether PMA
0.0 % Isobutyl Acetate
0.0 % Isopropyl Acetate
0.0 % MEK
0.0 % MIBK
0.0 % N-Propyl Acetate
0.0 % Tetrahydrofuran

----ALCOHOLS----
0.0 % N-Butanol
0.0 % Ethanol
0.0 % Isobutanol
0.0 % Isopropanol
0.0 % Methanol
0.0 % N-Propanol
0.0 % Water
0.0 % Diacetone Alcohol

----DILUENTS----
0.0 % Heptane
0.0 % Hexane
0.0 % Mineral Spirits
0.0 % 100 Flash Naphtha
0.0 % Stoddard Solvent
0.0 % Toluene
0.0 % VMP Naphtha
0.0 % Xylene

----CHLORINATEDS----
0.0 % Methylene Chloride
0.0 % Perchloroethylene
0.0 % 1,1,1-Trichloroethane
0.0 % 1,1,2-Trichloro-1,2,2-Trifluoroetha
0.0 % Trichloroethylene
0.0 % NOS

--------MISC--------
0.0 %
0.0 %
0.0 %
0.0 %
0.0 %
0.0 %

Company : CTS KNIGHTS
Location: SANDWICH, IL
Customer Nr:
Salesperson: SKUMER Branch: R
Analyzed By: MR Date: 08/06/90
Approved By: SS

==========

Lab Analysis Nr: A031029
Sales lab Nr: S008025
Incoming Nr:
Retain Lab Nr:
PCB Lab Nr:
Lab Type: WSA
Part Nr: RWD00101
Waste Master Nr: 00014081
Authorization Nr:
Batch Nr:
Lot Nr:
Other Nr:

==========

LABORATORY DATA

Waste Density: pH:
Solvent Density: 0.811 pH: 7.30
Total Distillate: Solids:
% Yield:
% Chlorides: PCB (ppm):
Acid Acceptance:
APHA Color: Odor:
BTU/lb: BTU/Gal:
% Water by KF:
Flash Point (TCC Deg F):

==========

Material Comments: ISOPROPANOL
Recommend: DISPOSAL D-01
Label: FLAMMABLE
UN/NA Nr: UN1219
Dot Hazard Class: FLAMMABLE LIQUID
EPA Waste Code Nr: D001
DOT PSN: WASTE ISOPROPANOL
==========
Comments:
"ISOPROPANOL MIXTURE"
CLEAN SAMPLE
LOW BTU

*** Information contained is believed to be ***
** correct to the best of our knowledge **
** and is based on the sample supplied. **

CHROMATOGRAPHIC ANALYSIS

----ACTIVES----
0.0 % Acetone
0.0 % N-Butyl Acetate
0.0 % Cyclohexanone
0.0 % Ethyl Acetate
0.0 % Glycol Ether EB
0.0 % Glycol Ether EE
0.0 % Glycol Ether EEAc
0.0 % Glycol Ether EM
0.0 % Glycol Ether EEP
0.0 % Glycol Ether EP
0.0 % Glycol Ether PM
0.0 % Glycol Ether PMA
0.0 % Isobutyl Acetate
0.0 % Isopropyl Acetate
0.0 % MEK
0.0 % MIBK
0.0 % N-Propyl Acetate
0.0 % Tetrahydrofuran

----ALCOHOLS----
0.0 % N-Butanol
1.0 % Ethanol
0.0 % Isobutanol
87.5 % Isopropanol
2.0 % Methanol
0.0 % N-Propanol
9.5 % Water
0.0 % Diacetone Alcohol

----DILUENTS----
0.0 % Heptane
0.0 % Hexane
0.0 % Mineral Spirits
0.0 % 100 Flash Naphtha
0.0 % Stoddard Solvent
0.0 % Toluene
0.0 % VMP Naphtha
0.0 % Xylene

----CHLORINATEDS----
0.0 % Methylene Chloride
0.0 % Perchloroethylene
0.0 % 1,1,1-Trichloroethane
0.0 % 1,1,2-Trichloro-1,2,2-Trifluoroetha
0.0 % Trichloroethylene
0.0 % NOS

--------MISC--------
0.0 %
0.0 %
0.0 %
0.0 %
0.0 %
0.0 %

Report:RC1300 AVGARICE RC INVENTORY 10-Aug-90 02:25 PM
SAMPLE LABORATORY REPORT FORM

Company : CTS KNIGHTS
Location: SANDWICH, IL
Customer Nr:
Salesperson: SKOMER Branch: R
Analyzed By: MR Date: 08/06/90
Approved By: SS

==

Lab Analysis Nr: A031032
Sales lab Nr: S008028
Incoming Nr:
Retain Lab Nr:
PCB Lab Nr:
Lab Type: WSA
Part Nr: RWD00701
Waste Master Nr: 0001408
Authorization Nr:
Batch Nr:
Lot Nr:
Other Nr:

==

LABORATORY DATA

Waste Density: 1.182 pH: 5.90
Solvent Density: pH:
Total Distillate: Solids:
% Yield:
% Chlorides: 0.44 PCB (ppm):
Acid Acceptance:
APHA Color: Odor:
BTU/lb: 13552 BTU/Gal: 133679
% Water by KF:
Flash Point (TCC Deg F):

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Material Comments: OIL
Recommend: DISPOSAL D-07
Label: COMBUSTIBLE
UN/NA Nr: NA1270
Dot Hazard Class: COMBUSTIBLE LIQUID
EPA Waste Code Nr: D001
DOT PSN: WASTE PETROLEUM OIL
==
Comments:
OIL GRIT-SLUDGE"
NO DISTILLATE

*** Information contained is believed to be ***
*** correct to the best of our knowledge ***
*** and based on the sample supplied. ***

CHROMATOGRAPHIC ANALYSIS

----ACTIVES-----
0.0 % Acetone
0.0 % N-Butyl Acetate
0.0 % Cyclohexanone
0.0 % Ethyl Acetate
0.0 % Glycol Ether EB
0.0 % Glycol Ether EE
0.0 % Glycol Ether EEAc
0.0 % Glycol Ether EM
0.0 % Glycol Ether EEP
0.0 % Glycol Ether EP
0.0 % Glycol Ether PM
0.0 % Glycol Ether PMA
0.0 % Isobutyl Acetate
0.0 % Isopropyl Acetate
0.0 % MEK
0.0 % MIBK
0.0 % N-Propyl Acetate
0.0 % Tetrahydrofuran

----ALCOHOLS ---
0.0 % N-Butanol
0.0 % Ethanol
0.0 % Isobutanol
0.0 % Isopropanol
0.0 % Methanol
0.0 % N-Propanol
0.0 % Water
0.0 % Diacetone Alcohol

----DILUENTS----
0.0 % Heptane
0.0 % Hexane
0.0 % Mineral Spirits
0.0 % 100 Flash Naphtha
0.0 % Stoddard Solvent
0.0 % Toluene
0.0 % VMP Naphtha
0.0 % Xylene

----CHLORINATEDS----
0.0 % Methylene Chloride
0.0 % Perchloroethylene
0.0 % 1,1,1-Trichloro-ethane
0.0 % 1,1,2-Trichloro-1,2,2-Trifluoroethan
0.0 % Trichloroethylene
0.0 % NOS

--------MISC-------
0.0 %
0.0 %
0.0 %
0.0 %
0.0 %
0.0 %

eport:RCI000 AVGANICS OF LOUISVILLE 07 Aug ' 09: ' AM
SAMPLE LABORATORY REPORT FORM

Company : CTS KNIGHTS
ocation: SANDWICH, IL
ustomer Nr:
: :sperson: SKOMER Branch: R
nalyzed By: MR Date: 08/06/90
pproved By: MR

==========

ab Analysis Nr: A031033
Sales lab Nr: S008029
ncoming Nr:
etain Lab Nr:
PCB Lab Nr:
ab Type: WSA
art Nr: RWD00401
Waste Master Nr: C0014032
Authorization Nr:
atch Nr:
ot Nr:
Other Nr:

==========

LABORATORY DATA

Waste Density: 0.871 pH: 5.50
Solvent Density: pH:
otal Distillate: Solids:
% Yield:
% Chlorides: 12.71 PCB (ppm):
cid Acceptance:
PHA Color: Odor:
BTU/lb: 15406 BTU/Gal: 111980
% Water by KF:
lash Point (TCC Deg F):

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aterial Comments: CHLORIDE OIL
Recommend: CHLORIDE DISPOSAL D-04
abel:
N/NA Nr: NA9189
Dot Hazard Class: ORME
PA Waste Code Nr: F002
OT PSN: HAZARDOUS WASTE LIQUID NOS
==========
Comments:
M-OIL

*** Information contained is believed to be ***
*** correct to the best of our knowledge ***
*** and based on the sample supplied. ***

CHROMATOGRAPHIC ANALYSIS

----ACTIVES----
0.0 % Acetone
0.0 % N-Butyl Acetate
0.0 % Cyclohexanone
0.0 % Ethyl Acetate
0.0 % Glycol Ether EB
0.0 % Glycol Ether EE
0.0 % Glycol Ether EEAc
0.0 % Glycol Ether EM
0.0 % Glycol Ether EEP
0.0 % Glycol Ether EP
0.0 % Glycol Ether PM
0.0 % Glycol Ether PMA
0.0 % Isobutyl Acetate
0.0 % Isopropyl Acetate
0.0 % MEK
0.0 % MIBK
0.0 % N-Propyl Acetate
0.0 % Tetrahydrofuran

----ALCOHOLS----
0.0 % N-Butanol
0.0 % Ethanol
0.0 % Isobutanol
0.0 % Isopropanol
0.0 % Methanol
0.0 % N-Propanol
0.0 % Water
0.0 % Diacetone Alcohol

----DILUENTS----
0.0 % Heptane
0.0 % Hexane
0.0 % Mineral Spirits
0.0 % 100 Flash Naphtha
0.0 % Stoddard Solvent
0.0 % Toluene
0.0 % VMP Naphtha
0.0 % Xylene

----CHLORINATEDS----
0.0 % Methylene Chloride
0.0 % Perchloroethylene
0.0 % 1,1,1-Trichloro-
ethane
0.0 % 1,1,2-Trichloro-
1,2,2-Trifluoroethan
0.0 % Trichloroethylene
0.0 % NOS

--------MISC--------
0.0 %
0.0 %
0.0 %
0.0 %
0.0 %
0.0 %

SAMPLE LABORATORY REPORT FORM

Company : CTS KNIGHTS
Location: SANDWICH, IL
Customer Nr:
Salesperson: SKUMER Branch: R
Analyzed By: MR Date: 08/06/90
Approved By: SS

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Lab Analysis Nr: A031033
Sales lab Nr: S008027
Incoming Nr:
Retain Lab Nr:
PCB Lab Nr:
Lab Type: WSA
Part Nr: RW001101
Waste Master Nr: 00014083
Authorization Nr:
Batch Nr:
Lot Nr:
Other Nr:

==

LABORATORY DATA

Waste Density: 1.305 pH: 5.80
Solvent Density: pH:
Total Distillate: 23/25 Solids: F
% Yield: 85
% Chlorides: PCB (ppm):
Acid Acceptance:
APHA Color: Odor:
BTU/lb: BTU/Gal:
% Water by KF:
Flash Point (TCC Deg F):

==

Material Comments: FRACT 111 TRICHLOROETHANE
Recommend: ACQUIRE/ PURCHASE -11
Label: NON FLAMMABLE
UN/NA Nr: UN2831
Dot Hazard Class: ORMA
EPA Waste Code Nr:
DOT PSN: WASTE 111 TRICHOROETHANE

==

Comments:
111 TRICHLOROETHANE*
TRACE: WATER

*** Information contained is believed to be ***
*** correct to the best of our knowledge ***
*** and based on the sample supplied. ***

CHROMATOGRAPHIC ANALYSIS

----ACTIVES----
0.5 % Acetone
0.0 % N-Butyl Acetate
0.0 % Cyclohexanone
0.0 % Ethyl Acetate
0.0 % Glycol Ether EB
0.0 % Glycol Ether EE
0.0 % Glycol Ether EEAc
0.0 % Glycol Ether EM
0.0 % Glycol Ether EEP
0.0 % Glycol Ether EP
0.0 % Glycol Ether PM
0.0 % Glycol Ether PMA
0.0 % Isobutyl Acetate
0.0 % Isopropyl Acetate
0.0 % MEK
0.0 % MIBK
0.0 % N-Propyl Acetate
0.0 % Tetrahydrofuran

----ALCOHOLS----
0.0 % N-Butanol
0.0 % Ethanol
0.0 % Isobutanol
3.0 % Isopropanol
0.0 % Methanol
0.0 % N-Propanol
0.0 % Water
0.0 % Diacetone Alcohol

----DILUENTS----
0.0 % Heptane
0.0 % Hexane
0.0 % Mineral Spirits
0.0 % 100 Flash Naphtha
0.0 % Stoddard Solvent
0.0 % Toluene
0.0 % VMP Naphtha
0.0 % Xylene

----CHLORINATEDS----
0.0 % Methylene Chloride
1.0 % Perchloroethylene
89.5 % 1,1,1-Trichloroethane
0.0 % 1,1,2-Trichloro-1,2,2-Trifluoroethan
0.0 % Trichloroethylene
0.0 % NOS

------MISC------
2.5 % DIOXOLANE
[illegible] % DIOXENE
[illegible].0 %
[illegible].0 %
[illegible] %
0.[illegible] %

Company : CTS KNIGHTS
Location: SANDWICH, IL
Customer Nr:
Salesperson: SKOMER Branch: R
Analyzed By: MR Date: 08/06/90
Approved By: SS

==

Lab Analysis Nr: A031030
Sales lab Nr: S008026
Incoming Nr:
Retain Lab Nr:
PCB Lab Nr:
Lab Type: WSA
Part Nr: RWD00401
Waste Master Nr: 00014052
Authorization Nr:
Batch Nr:
Lot Nr:
Other Nr:

==

LABORATORY DATA

Waste Density: 1.279 pH: 7.10
Solvent Density: pH:
Total Distillate: 23/25 Solids: F
% Yield: 83
% Chlorides: PCB (ppm):
Acid Acceptance:
APHA Color: Odor:
BTU/lb: BTU/Gal:
% Water by KF:
Flash Point (TCC Deg F):

==

Material Comments: 111 TRICHLOROETHANE
Recommend: CHLORIDE DISPOSAL D-04
Label: NON FLAMMABLE
UN/NA Nr: UN2831
Dot Hazard Class: ORMA
EPA Waste Code Nr:
DOT PSN: WASTE 111 TRICHLOROETHANE

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Comments:
ALPHA 55*

*** [illegible] information contained is believed to be ***
*** [illegible] best of our knowledge ***
*** and based on the sample supplied. ***

CHROMATOGRAPHIC ANALYSIS

----ACTIVES----

0.0 % Acetone
0.0 % N-Butyl Acetate
0.0 % Cyclohexanone
0.0 % Ethyl Acetate
0.0 % Glycol Ether EB
0.0 % Glycol Ether EE
0.0 % Glycol Ether EEAc
0.0 % Glycol Ether EM
0.0 % Glycol Ether EEP
0.0 % Glycol Ether EP
0.0 % Glycol Ether PM
0.0 % Glycol Ether PMA
0.0 % Isobutyl Acetate
0.0 % Isopropyl Acetate
0.0 % MEK
0.0 % MIBK
0.0 % N-Propyl Acetate
0.0 % Tetrahydrofuran

----ALCOHOLS----

0.0 % N-Butanol
0.0 % Ethanol
0.0 % Isobutanol
0.0 % Isopropanol
0.0 % Methanol
6.5 % N-Propanol
0.0 % Water
0.0 % Diacetone Alcohol

----DILUENTS----

0.0 % Heptane
0.0 % Hexane
0.0 % Mineral Spirits
0.0 % 100 Flash Naphtha
0.0 % Stoddard Solvent
0.0 % Toluene
0.0 % VMP Naphtha
0.0 % Xylene

----CHLORINATEDS----

0.0 % Methylene Chloride
0.0 % Perchloroethylene
93.5 % 1,1,1-Trichloroethane
0.0 % 1,1,2-Trichloro-1,2,2-Trifluoroethan
0.0 % Trichloroethylene
0.0 % NOS

--------MISC--------

0.0 %
0.0 %
0.0 %
0.0 %
0.0 %
0.0 %